

SEPTEMBER 1949

CHEMICAL PROCESSING PREVIEW

The Magazine of Processing, its Control and Development

Highlights

of this issue's
261 articles

Describing developments in
processes, techniques, ma-
terials, equipment

Molasses, Other Viscous
Liquids, Metered at Auto-
matically Controlled Rate 6

Unload Bags of Chemicals
onto Paper Sheets, Instead
of Skids, for Pickup by
Truck 6

Non-flammable Liquid
Solves Problem of Heating
Process to 575°F 16

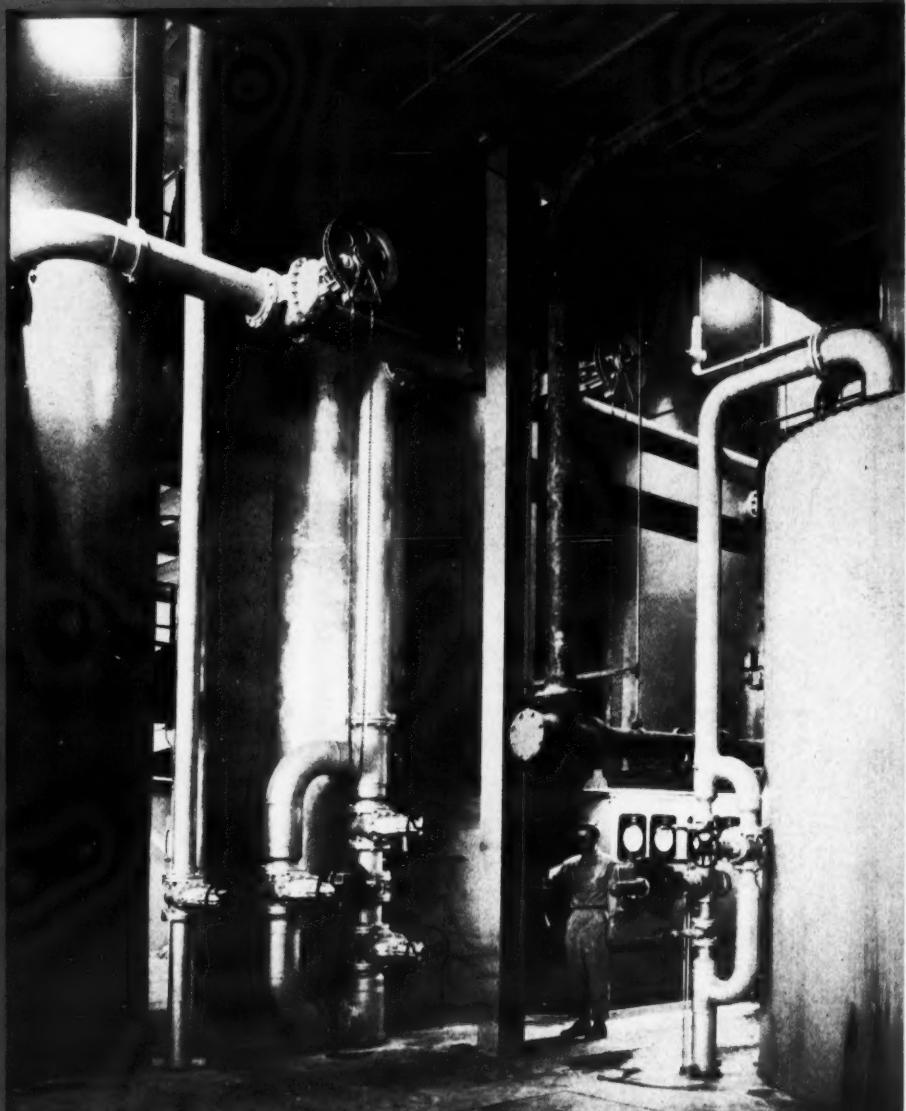
Mechanical Fingers Dot Glue
on Cases; Simplify Unitizing
Pallet Loads 32

Radioisotopes Produced by
Cyclotrons Are Being Made
Available 60

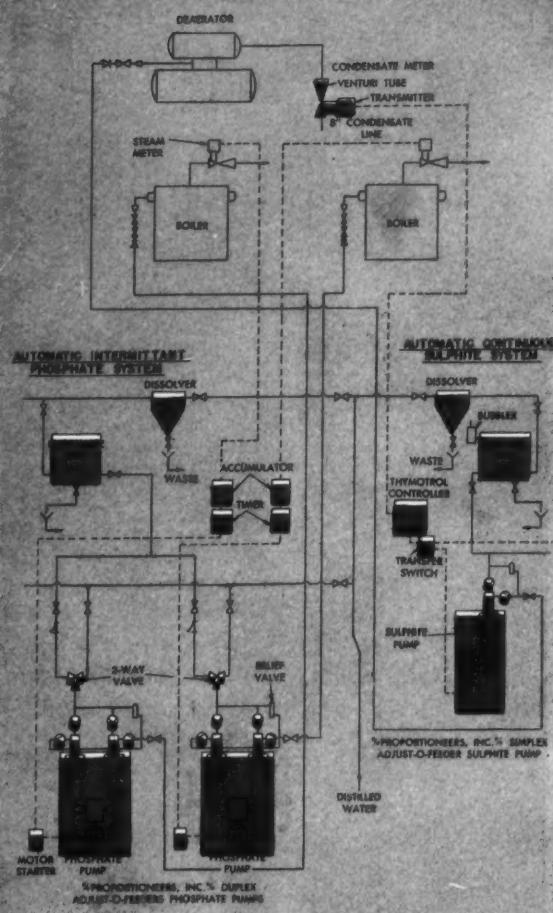
The Cover Picture

Prefabricated piping assures
simplified assembly at new
plant of American Crystal
Sugar Co. shown are
lines to first and second car-
bonation tanks ... Page 61

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All equipment shown
red in photo and flow-
gram furnished by
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%Proportioneers % sulfite feed pumps in the
Redondo Steam Station.
In foreground: high
pressure duplex phos-
phate pumps and con-
trol panel, in the back-
ground.

No. 3 in a series on
boiler water condi-
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"That's Interesting"

**Fields for use of gallium
are wide open**

The April issue of Alcoa Aluminum News Letter states that gallium is now available in limited quantities. Derived from bauxite, the same ore from which aluminum is produced, gallium possesses the unique property of having a greater density when in a liquid state than when in a solid.

Imagine a metal that is liquid at 86 degrees F., has a boiling point of approximately 3700 degrees, but sometimes undercools and remains liquid at temperatures many degrees below its freezing point.

It is suggested that it might improve various products when incorporated as an element that expands when solidifying. Also, of great interest is the fact that it is a metal that will wet many types of non-metallic surfaces such as glass and porcelain. It is surprising that a globule of gallium will remain bright and shiny even when heated to as high as 1000 degrees F. Gallium is quite similar to aluminum, in its chemical behavior, although it is not a light metal. Its density is about twice that of aluminum but only about half that of mercury.

Silica effective against confused flour beetle

Silica, in light gel form of extremely fine particle size, is proving effective against the confused flour beetle — *Tribolium confusum* Jacq — among other uses. (The Chemical Digest-Foster D. Snell, Inc., New York, N. Y.)

Mill sweepings used in high grade electrical insulation board

Textile mill floor sweepings are used by a manufacturer of fiber board in an especially high grade of electrical insulation board. Two Taylor-Stiles cutters prepare the sweepings. The high content of scrap, wire, bolts, nuts, etc. in the scrap presented serious problem in damage to cutter knives until Dings magnetic separators were placed ahead of the feed apron of one of the cutters.

Utilization of floor sweepings are proving most profitable to both mill and fiber board manufacturers. (From Cutting Tops, Taylor Stiles & Co., Riegelsville, N. J.)

Glass-lined steel tank has capacity of 35,000 gals.

Production of one-piece glass lined storage tanks, by the Pfaudler Co., Rochester, N. Y., is said to establish a new record for glass lined steel as a material of construction for chemical service. One such tank measures 12 feet in diameter by 45 feet in length and has a capacity of 35,000 gallons.

(Continued on third cover)



For more information on prod-
uct at left, specify CP 2823
see information request
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As you read this issue, if you want more information on processes, controls or developments of products discussed herein . . .

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2224	Process Pumps	2673	Enamels	2942	Hydroelectric "K" Lift Trucks	3010	Phase Contrast Accessories
2225	Amino Acids	2674	"Graphitar"	2943	Hopper Car Shakers	3011a	Hard Rubber Pipe & Fittings
2226	Porous Stone Filters	2675	Penterythritol	2944	Rotary Pumps	3011b	Plastic Pipe & Fittings
2227	Truck Towing System	2676	Petroleum Products*	2945	Drum Storage Racks	3012	Diaphragm Slurry Pumps
2228	"Speedomax" Equipment	2677	Methoxy Polyethylene Glycol	2946	Crane Brake & Hoist Control	3013	Radiochemical Laboratory
2229	Ionic C-212 Resin	2678	Picatized Polyvinyl Chloride	2947	Magnetic Separators	3014	Dust Collectors
2230	Viscous Liquid Flow	2679	Formulations	2948	Storage Bins	3015	Portable Mixers
2231	Controllers	2680	Iron Pentacarbonyl	2949	Telescoping Roller Conveyors	3016	Acid-handling Pump
2232	Stainless Steel Tubing	2681	Preservative Lubricant	2950	Compressors and Vacuum	3017	Filter Cloths
2233	Geared Pipe Threaders	2682	Additive	2951	Pumps	3018	Cutters
2234	Chute Type Magnetic	2683	Cyclon 'WPS' Coatings	2952	Bucket Elevators	3019	Steam Heating System
2235	Separator	2684	Floor Insulation	2953	Steam Traps & Controls	3020	"Dynalog Instruments"
2236	Fog Fume Scrubber	2685	Elasto-rib	2954	"Tracerlog"	3021	Atomizers, Pulverizers & Collectors
2237	Books and Periodicals	2686	Wetting Agents	2955	Pilot-Venturi Element	3022	Gum Rosin
2238	75° Glossmeter	2687	Chemicals	2956	Resistance Bulbs	3023a	Reclaiming Process
2239	Pul-Pac Trucks	2688	Fire-resistant Paint	2957	pH Electrodes	3023b	Bulletin 330-D
2240	Corrugated Wrappings & Fiber Boxes	2689	Coating Resins	2958	End Windows	3024	Vinyl Plastics Stabilizers
2241	Oil Purifier	2690	Bonded Silicone Rubber	2959	Manostat Vacuum Regulator	3025	Controlled Volume Pumps
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2250	Recessed-End Fittings	2698	Non-ionic Detergents	2966a	Laboratory Shakers	3034	Gravity Wheel Conveyors
2251	Sanitary Fittings	2699	Resin Emulsions & Solutions	2966b	CO ₂ Indicators	3035	"Control of Condenser Fouling"
2252	Screwed Fittings & Valves	2700	Liquid Sulfur Dioxide	2967	Gamma Ray Detector	3036	Gearmotors
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2270	Exterior Coating	2718	Pneumatic Conveyors	2985a	Spectrograph Adapter	3052	"The Brooks Oil Story"
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2279	Hard Stainless Steel	2727	Fork-lift Trucks	2993	Pressure Reducing Valves	3061	Carbon Determinator
2280	"Higher Dials"	2728	Stainless Steel Hoppers	2994	Bin-level Controllers	3062	Roller Chains, Sprockets
2281	Dicalcium, Tricalcium Phosphates	2729	Screw-Flo" Conveyor	2995	Pyrometers	3063	Highflex Air Hose
2282	Aluminum Formate	2730	Drum Trucks	2996	Pyrometer Controller	3064	Adhesive Air Filter
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<input type="checkbox"/> 3121	Humidity Control System	<input type="checkbox"/> 3184	Solenoid Valves	<input type="checkbox"/> 3246	Corrosion-resistant Alloys	<input type="checkbox"/> 3308	Pressure Vessels
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Main Product _____

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VOL. 12

SEPTEMBER

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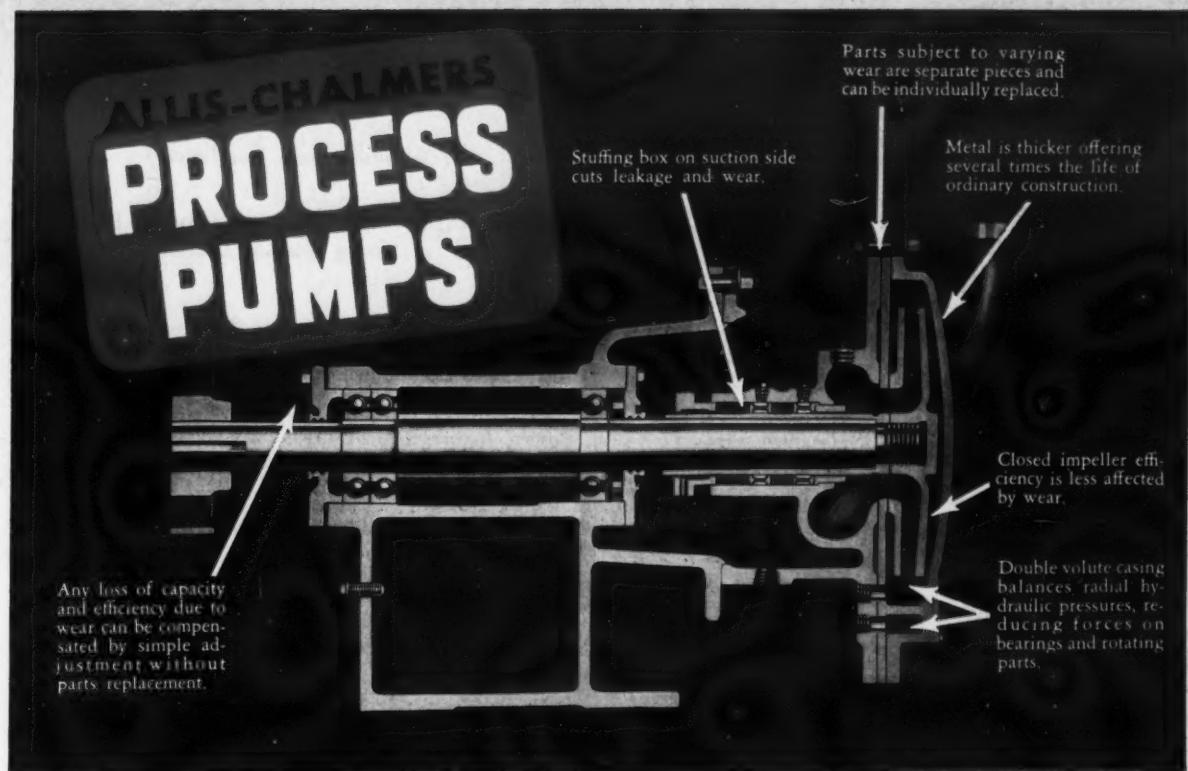
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When inquiring check CP 2824 on handy form, pgs. 2-3

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that may have possibilities
for you

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This long chain aliphatic amino acid has unusual properties of emulsification and foam stabilization. Available in experimental quantities.

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Containing three active groups, this amino acid may be useful in a variety of organic syntheses. Available in experimental quantities.

For further information on any or all of these new amino acids, please write Dept. CE-9, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, O.

B. F. Goodrich Chemical Company A Division of The B. F. Goodrich Company
GEON polyvinyl materials • NYCAR American rubber • GOOD-RITE chemicals and plasticizers

When inquiring check CP 2825 on handy form, pgs. 2-3

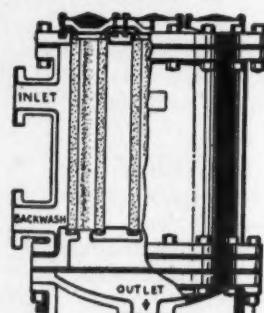
ADAMS PORO STONE FILTERS

for High-Degree Crystal-Clear Filtering of Corrosive Chemicals CFR (Rubber-lined) CFL (Lead-lined)

Adams Filters are completely enclosed for safety—yet installation is simple and tubes may be inspected or removed without dismantling the filter. All parts in contact with the acid are inert to its action.

Filter tubes are easily and speedily cleaned by backwashing, and may be repeatedly cleaned and used. There is full reclamation of the filtered acid.

Descriptive Circular 303 gladly mailed. A test in your plant of Poro-stone tubes operating under your actual conditions can be arranged on request.



R. P. ADAMS CO. INC. 243 E. PARK DRIVE, BUFFALO 17, N.Y.

When inquiring check CP 2826 on handy form, pgs. 2-3

Highlights

(Continued from front cover)

These articles have been selected by the Editors as having unusual interest

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★ Continuous Proportioning of Paper Pulp Saves Power, Assures Uniformity . . . System provides steady stream of machine furnish, conserves floor space and labor 14

★ Sludging and Coking Minimized with Heat-transfer Fluids . . . Synthetic media easy on various rubbers, packings; viscosity indices are 142 and 150 18

★ Corrosion-resistant Coatings Bond to All Metals without Surface Roughening . . . Vinyl coating system protects metals from alcohols, acids, salts, petroleum products, etc. 24

★ Uses for Organic Acids Lie in Many Fields . . . Caprylic and capric acid employed in surface-active agents, fungicides, plasticizers, cosmetics, others 30

★ Pick Up and Move 12 Gas Cylinders at Once with Truck's Special Carrier . . . Operation is part of mid-west chemical plant's new mechanized system that replaces slow, costly manual methods 32

★ Suspension System of Lift Truck Automatically Compensates for Off-Center Loads . . . Telescoping and non-telescoping models carry 1 ton, have only 33" wheelbase 35

★ Unique Pitot-Venturi Element Creates Amplified Pressure Differentials . . . Unit has little pressure drop, can be used in large ducts carrying liquids, dry or wet gases 46

★ Controlled-leak Regulator Holds Vacuum to Any Preset Value . . . Unit has control sensitivity better than 0.05 mm of mercury; operates at any vacuum 48

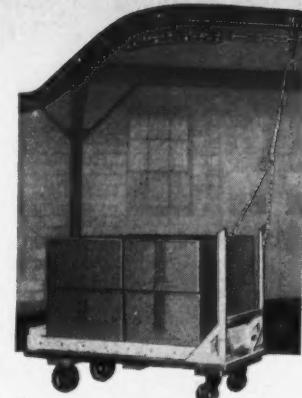
★ Versatile Radiation Counter Combines Functions of 5 Instruments . . . Compact unit acts as scaler, survey meter, counter, meter and contamination detector 51

★ Prefabrication Simplifies Piping Assembly . . . Erection or maintenance force ordinarily should not be called on to assemble piping 61

★ Machines for Applying Geon Latex Paper Coatings Require Careful Selection . . . Air knife type coater said to be most suitable of all; can apply any weight of coating 62

★ Study Stability of AISI Alloy Steels at Elevated Temps. . . Involves alloy compositions exposed for 10 years to determine stability characteristics 64

★ Wide-range Metering of Chlorine into Water without Changing Orifices, Scales . . . Chlorine feeder automatically or manually controlled; includes devices for assuring safe operation 84



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TOWA-FLOW
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modern, flexible
truck towing system

Here's an idea! Adapt your hand truck operation to this cost-reducing conveying system—an Alvey-Ferguson TowA-Flow. Clear your aisles . . . save time and relieve employees from costly truck pushing. No alteration or damage to plant floors—the TowA-Flow power chain is conveniently overhead. Trucks are quickly attached without stooping.

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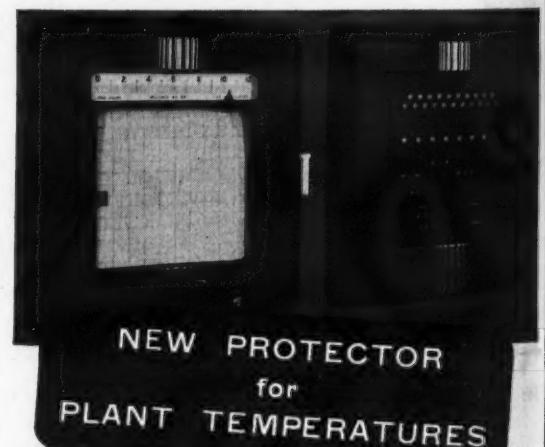
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CONVEYING EQUIPMENT

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When inquiring check CP 2827 on handy form, pgs. 2-3



NEW PROTECTOR
for
PLANT TEMPERATURES

Checks

160 Points In Only 10.6 Minutes!

Remarkably fast, this Speedomax equipment can check process and plant temperatures at the rate of one every 4 seconds. Shift operator can "tour" temperatures merely by watching readings; or Speedomax will sound alarm. Equipment records when and as desired for later examination or shift log. Detectors are either Thermocouples or Thermohm electric-resistance Thermometer bulbs.



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* Pump liquids, Slurries without Aeration, Contamination . . . Ejection pump requires no lubrication, has no glands or bearings, does not churn liquids	89
* Feed Dry Granular Material in Steady, Uninterrupted Controlled Flow . . . Micrometer-type adjustment permits altering of flow while unit is in operation	96

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SEPTEMBER, 1949

NEW

Water Softening Resin

Ionac* C-212

... non-phenolic, monofunctional cation-exchange resin — in price range of low-cost phenolics!

HERE'S GOOD NEWS for both manufacturers and users of water softening equipment. Cyanamid's NEW water softening resin IONAC C-212 offers medium-high exchange capacity, improved operating characteristics, lower initial costs.

Manufacturers—use IONAC C-212 to decrease costs, increase the efficiency of the equipment you sell!

Users—modernize your present softener—replace greensands, zeolites and low-capacity synthetics with new efficient IONAC C-212!

Compare

PRICE: On kilograms capacity per cubic foot, IONAC C-212 is the best buy available. Write for price schedule.

Compare

COLOR THROWING: Essentially none . . . even when soaked in 1% caustic for 18 hours.

Compare

LIFE: On the hydrogen cycle, IONAC C-212 has gone 1300 cycles on our laboratory recycler without an appreciable drop in capacity. Neither capacity nor physical characteristics were affected by boiling for three hours in either 10% caustic or 10% acid.

Plus IONAC C-212

1. Provides increased stability over the entire pH range.
2. Increases resistance to degradation caused by the chlorine found in most municipal supplies.
3. Can be used at flow rates up to 10 gal. per min. per cu. ft. on low-solids influents, 2-4 gal. per min. on high-solids.

GLOWING REPORTS have been received from initial trials in the field. Investigate the many cost-saving and operating advantages of IONAC C-212 . . . the resin that is non-phenolic in composition, but comparable in price to the low-cost phenolics.

FILL IN, MAIL COUPON TODAY!

C.P.9

AMERICAN Cyanamid COMPANY

ION EXCHANGE PRODUCTS DEPARTMENT
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Send me data sheets on your new water softening resin — IONAC C-212.

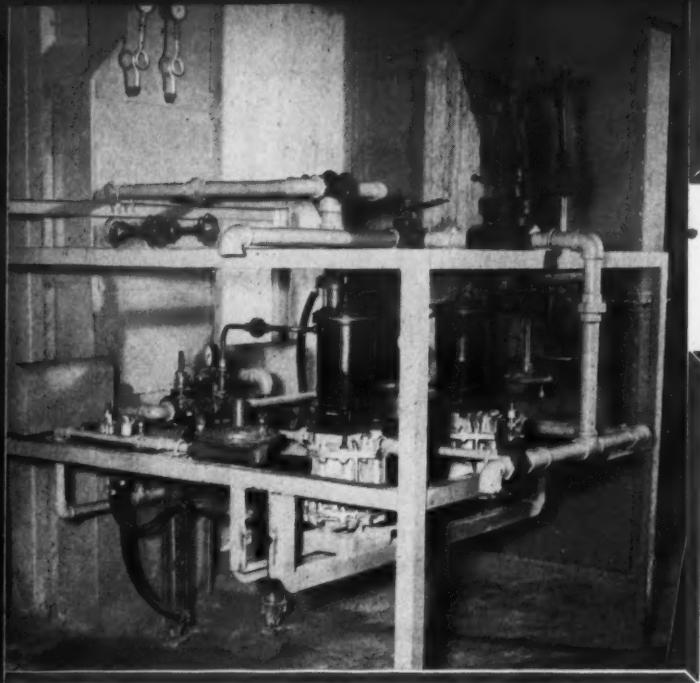
Name Title

Company

Address

City State

When inquiring check CP 2829 on handy form, pgs. 2-3



One ratio plug valve controls either molasses or condensed fish solubles flow to mixer

PROBLEM: Either molasses or condensed fish solubles, another very viscous liquid, are mixed with various dry ingredients in the preparation of commercial cattle feeds. In setting up a continuous mixing line at the McMillen Feed Mills, Inc., Memphis, Tenn., gravimetric feeders were selected to deliver the dry ingredients at a predetermined constant rate. How to deliver the viscous liquids, molasses or condensed fish solubles continuously and at a predetermined rate was the problem.

Solution: Flow of viscous liquids is measured by a piston-type positive displacement meter, which is combined with a signal transmitter. Rate of flow of liquid is converted by signal transmitter into an air impulse which varies as the square of the flow. Hence, air impulse can be used on a flow regulator in the same manner that differential pressure from an orifice in a gas line is used.

In this case, flow regulator is a ratio plug valve. Air impulse from signal transmitter is conducted to diaphragm system of an Askania Unit Regulator, which controls operation of the ratio plug valve.

Separate lines were set up for molasses and condensed fish solubles; however, to avoid expense of a duplicate set of instrument controls, same ratio plug valve is used to control both lines. That is, the molasses and condensed fish solubles lines converge just before the plug valve, then diverge into separate lines just after it. This arrangement is possible since both liquids are never used in same mix.

A steam line accompanies these liquid lines to keep them hot, reducing the viscosity of the liquids and easing pumping and metering. Before entering these lines both molasses and condensed fish solubles are heated in small heating tanks after being pumped in from large outdoor storage tanks.

Molasses, Other Viscous Liquids, Metered at Automatically Controlled Rate

Air impulse hookup on piston-type, positive displacement meter results in control characteristics similar to that obtained from orifice in gas line

Entire feed line is interlocked electrically so that when material from gravimetric feeders reaches feed spout to the agitator mixers, a switch makes a contact, starting the liquid system. (Liquid lines always stand full.)

Controls on liquid system include a ratio dial which enables operator to govern flow of liquid going to mixer in correct proportion to rest of ingredients.

Results: Interlocking system on feed line to mix-

er assures correct proportions of liquid and solid ingredients at start of operation.

Molasses and condensed fish solubles are delivered to mixers at predetermined constant rates. Rate of delivery is easily controlled and instantly changed.

Source: Askania Regulator Company, Dept. CP, 240 East Ontario Street, Chicago 11, Illinois . . . or for more information check CP 2830 on handy form, pages 2 and 3.

Unload Bags of Chemicals Onto Paper Sheets, Instead of Skids, for Pick-up by Truck

Special rack of truck pulls sheet, holding stacked bags, onto carrier plates; box car unloaded in 1/2 time; bag damage avoided

PROBLEM: Northwest Paper Bag Co., Cloquet, Minn., used platform trucks and skids in unloading raw materials, such as bagged chemicals. Because of many handlings from unloading to storage to production the paper bag suffered extensive damage. Manual methods were extremely slow, requiring eight hours to unload a single car. This delayed emptying cars for switching and return to service.

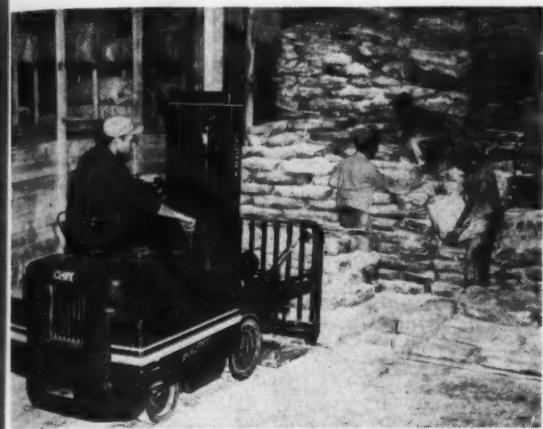
The practice was to have two men in a box car unload and stack the bags onto skids, which were picked up on a platform truck and rolled

Bags for raw material for making sulphite bond paper are tiered to ceiling height; easily pushed into place on top of pile



to storage area. Here another crew unloaded and hand-stacked the bags into piles. Bags could be stacked only 10 high and with great exertion.

When materials were needed for production, bags were again manually picked-up and moved to production on platform trucks. Thus, from arrival at plant to delivery to production operation, manual methods of raw material handling delayed unloading and switching of cars, damaged bags, wasted storage space and manpower and slowed production.



Placing bags of chemicals on paper carrier-sheets to convert from hand-stack method to mechanized "Pul-Pac" tiering

Solution: Instead of placing bags on skids, the two men now working in box car put them on paper load-carrier sheets.

A "Pul-Pac" truck is then driven into the car, and its special rack, embodying a gripping jaw, is extended against the edge of a bag-loaded sheet-carrier. As the rack is drawn back the jaw grips the sheet, which is then pulled back on the truck's two wide carrier-plates.

The load is lifted and carried to the storage area. Loads are easily spotted on floor, or placed evenly and securely atop another load, until bags are tiered 20 bags high.

When material is to be removed from storage to production area, the Pul-Pac truck again picks it up easily in the same manner.

The truck is also well adapted for handling other kinds of loads for which the carrier-sheet is not suited. Drums, for example are loaded on 48" x 50" pallets, with stringers placed to accommodate the carrier plates of the truck.

For such loads, the truck is operated as a standard forklift truck, lifting pallet loads, transporting them and tiering them in storage.

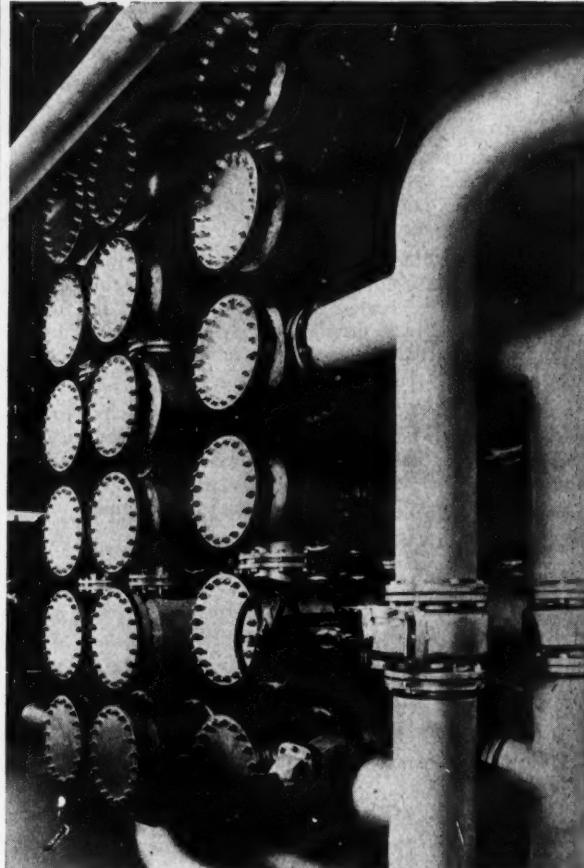
This truck is a Clark gas-powered fork truck (Carloader 4015) with Pul-Pac installation with maximum lifting height of 120".

Results: Cars are now unloaded in half the time formerly required, and switched without undue delay. A similar percentage in manpower savings is achieved, freeing workers for other duties. Compared to former tearing and breaking, damage to bags is now negligible, with little spillage or loss of material. This is due largely to the smooth, nail and splinter free surface provided by the paper loading sheets.

(Continued on page 9)

SEPTEMBER, 1949

TRENT tubing chosen for world's largest sulfite liquor alcohol plant



Stainless steel heat exchangers for cooling waste sulfite liquor to fermentation temperatures in the alcohol process.

Using waste sulfite liquor from the adjacent Gatineau Mills of the Canadian International Paper Company, the new \$3 million plant of Commercial Alcohols, Ltd., of Montreal, has commenced production with a capacity of 9,000 U. S. gallons of alcohol per day.

Design, engineering and construction were carried out by Vickers-Vulcan Process Engineering Company, Ltd., a joint subsidiary of The Vulcan Copper and Supply Company and Canadian Vickers, Ltd.

The extensive use of stainless steel throughout the processing is a significant endorsement of the reputation stainless steel has established in the pulp and paper and the chemical industries. To this reputation TRENT has made important contributions, particularly by demonstrating the advantages of *precision-finished* tubing—machine-formed, machine-welded and machine-sized for uniformity from $\frac{1}{8}$ " to 30" inclusive.

It is noteworthy, therefore, that TRENT tubing was chosen for all services requiring stainless steel piping and tubing, including sulfite liquor lines, heat exchangers, and other stainless steel process piping in the world's largest sulfite liquor alcohol plant. Perhaps you have an application that can best be solved by TRENT tubing. We will be glad to give any desired assistance. Informative data on request.

TRENT TUBE COMPANY
Subsidiary of Crucible Steel Company of America
General Office and Plant—East Troy, Wisconsin
Sales Offices: Chicago: 4501 W. Cortland St.

New York: Chrysler Building

TRENT

STAINLESS STEEL TUBING

When inquiring check CP 2831 on handy form, pgs. 2-3

Page 7

THE
Easy-to-handle
**GEARED
PIPE
THREADER**



RIDGID No. 4P's handles
take the struggle out
of carrying and putting on pipe

Even when you feel like a Tarzan you appreciate the sensible balanced loop handles that make the 4P easy to pick up, carry and work with. Mistake-proof workholder sets to size before you put it on pipe, one screw to tighten, no bushings. 4 sets of 5 high-speed steel chaser dies give clean accurate threads on 2 1/2", 3", 3 1/2" and 4" pipe. Ratchet handle furnished — **RIDGID** Universal Drive Shaft and Power Drive available for power-threading. For perfect threads easily, order the **RIDGID** 4P from your Supply House.

RIDGID
WORK-SAVER PIPE TOOLS
THE RIDGE TOOL CO. • ELYRIA, OHIO

When inquiring check CP 2832 on handy form, pgs. 2-3

Page 8

New Solutions
OF PROCESSING PROBLEMS

Magnetic Demetallization of Cleaning Solution Keeps Electroplating Rejects Low

Plating and cleaning solutions remain fresh longer
when ferrous particles are removed

PROBLEM: Accumulation of ferrous particles in cleaning tank of an electroplating system brought about rejections of a large percentage of plated pieces. These particles adhered to the products leaving the tank, and became incorporated in the electroplated coating, causing roughness. Particles which washed off in plating tanks contaminated the electrolyte.

Screens were tried, cleaning solution being circulated through them from time to time. However, when the texture of the screens was fine enough to catch the iron and steel dust, clogging became too frequent for economical and practical operation.

Solution: Photo illustrates how a waterproof chute-type magnetic separator has been applied to solve this problem. Magnet is inserted in sloping tray emptying into funnel. Assembly is installed over cleaning tank. Pump periodically circulates cleaning solution across magnet which removes ferrous particles.

Results: Not only have rejects been virtually eliminated, but finish has been improved. Furthermore, cleaning and plating solutions remain serviceable longer, thus lowering renewal cost and reducing number of shutdowns required for changing solutions and cleaning tanks.



Magnetic separator demetallizes cleaning solutions of electroplating system

Magnets can be treated to handle many types of liquids. Source: Manufactured by The Bauer Bros. Co., Dept. CP, 1719 Sheridan Ave., Springfield, Ohio . . . or for more information check CP 2833 on handy form, pages 2 and 3.

Water-fog Scrubbing of Fumes Eliminates Community Complaints

400-psi spray has an electrostatic charge, creates centrifugal force to throw out wetted fine dusts

PROBLEM: Reaction between sulfuric acid and ground phosphate rock in fertilizer plant caused fumes objectionable to surrounding community. Fumes contained fluoride gases, sulfuric acid vapors and very fine dusts of less than 5 microns.

Conventional scrubbing tower with low pressure sprays removed some fumes, but complaints of dust and odor still continued, although at a reduced rate.

Solution: A competely engineered unit, called the Fogson Filter, has been put to work in this plant. Using water fog, made by passing 400-psi water through special nozzles, this original fog equipment removes both large and small solids without regard to their solubility in water. In this case, it condenses the gases and vapors besides. In effect

it is an adsorption tower packed by tiny liquid spheres which are constantly being replaced.

These fine spheres, with entrained air, are forced into every part of the cleaning chamber. Because of this, contact with all surfaces of fume particles is assured and unit is self-cleaning.

In addition to wetting the solids, this type of scrubber uses the principle of friction-induced electrostatic surface potential to collect extremely fine particles and even free molecules on the water droplets. As water passes through spray nozzles at high pressure, a harmless static charge is generated on each tiny droplet.

Water fog enters cleaning chamber at an angle. This arrangement causes a helical motion in chamber, similar to

that in a cyclone collector. Wetted fine dust particles have enough mass to respond to the centrifugal force so created. They are thrown out, along with the coarse materials, to inner wall of chamber, where they flow as effluent down to settling tank at base of installation or to remote tank as desirable.

Results: Community complaint has been completely eliminated. It has been found that the Fogson Filter with low air resistance uses one-fourth to one-third the water that previous scrubbing tower used due to unique properties of fog and correct dimensions in design. Following are some typical data on installation at fertilizer super-phosphate acidulating unit where acid fumes are exhausted to air:

Gas Flow	4500 cfm
Inlet Gas Temperature	180° F
Outlet Gas Temperature	150° F
Water Used	30 gpm
Inlet Solids	4.78 grains plus 14.15 grains/cu ft of other material
Efficiency (weight basis)	90.6-93.4% total weight 99.2-99.4% fluorides 97.9-98.5% SO ₄ 89.3-91.6% H ₂ SO ₄

All solids were less than 5 microns. Moderately priced for such class of service and engineered for each application to insure satisfaction.

Source: Made by Duncan-Hudson Company, Dept. CP, 228 University Drive, East Lansing, Mich. . . or for more information check CP 2834 on handy form, pages 2 and 3.

64 pages of technical books, periodicals

Listing of all books and periodicals issued by publisher is contained in 64-page catalog. Polymer, physical, organic, inorganic, analytical and bio-chemistry are among many fields covered. Includes author index and subject index.

"Catalog 1949", issued by Interscience Publishers, Inc., Dept. CP, 215 Fourth Ave., New York 3, N. Y. When inquiring specify CP 2835 on handy form, pages 2 and 3.

Take gloss reading every 10 seconds

Small, portable 75° glossmeter is pictured and described in 4-page bulletin. Discusses exposure head with lamp, lens, and sensitive lightmeter. Gives typical values of 75° gloss taken by new meter on variety of surfaces.

States that gloss readings, taken by placing exposure head over surface and pressing thumb button, can be made at rate of 1 every 10 secs.

"Portable 75° Glossmeter", issued by Henry A. Gardner Laboratory, Inc., Dept. CP, 4723 Elm St., Bethesda, Md. When inquiring specify CP 2836 on handy form, pages 2 and 3.

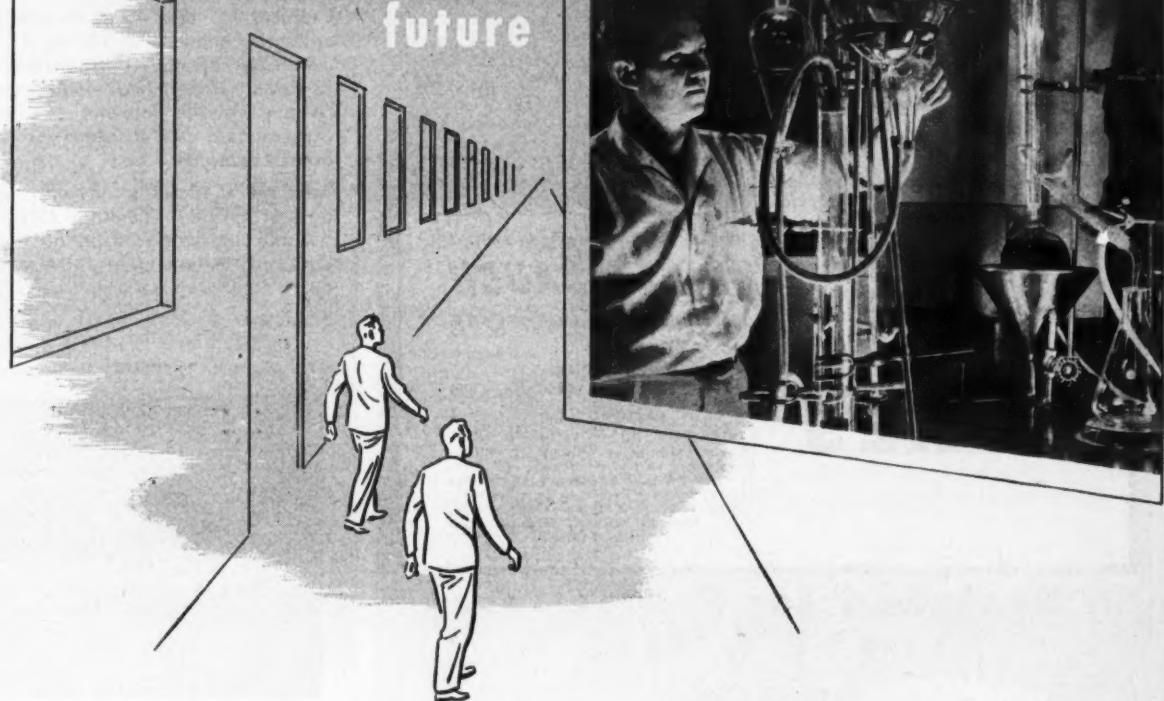
(Continued from page 7)

Storage space, formerly at a premium, is now fully adequate, as valuable overhead space is not wasted. Bags are easily tiered in perfect stack, to heights almost impossible by manual methods. Space now accommodates 50% more raw materials. Finally, production is aided by rapid movement of raw materials when they are required.

Source: Pul-Pac truck, utilizing carrier-sheets, is built by Clark Equipment Co. (Industrial Truck Div.), Dept. CP, Battle Creek, Mich. . . or for more information check CP 2837 on handy form, pages 2 and 3.

SEPTEMBER, 1949

window to the future



● Down this Pfizer corridor walk scientists with ideas for the future. Look through the laboratory windows on either side. Here you will see a better way of life emerging . . . now slowly . . . now with giant strides.

It has been Pfizer's aim to attract scientific talent and then to provide the vital environment — spotless laboratories, completely equipped, where these minds can freely create marvels for mankind which will transcend our present way of life.

Overshadowing research in size and personnel, but not in importance, are Pfizer's three efficient

industrial plants. With the guidance of skilled personnel, they are the means of mass-producing the technical harvest of the laboratory.

But the greatest contribution by far — linking past and present with the future — is Pfizer's pioneering tradition in chemistry. New frontiers await. On these frontiers the same principles which charted our past course will guide us in the future. Intangible these aims — intangible these principles, but they are as enduring as the Pyramids. Now starting our second century, we pledge for the future:

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If a product is worth wrapping, it deserves FLEXPAK*, a flexible, corrugated "wrapping paper" that hugs the product and cushions it on all sides to protect it from shock, abrasion, puncture, corrosion, dirt and grit. Used just like wrapping paper, FLEXPAK reduces breakage, saves packaging costs, conserves materials, cuts packing time. Your package is smaller, neater, lighter. Ask for a sample.

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CLEVER MERCHANDISING
Intelligent Packaging

A novel idea, such as the promotion of this "Father's Box," catches popular fancy with the help of good packaging. This H & D box is an example of good package design and colorful printing. It protects the merchandise in transit and displays it as an attractive gift. Give your product the advantages of planned packaging and watch sales climb!



CONCENTRATED WEIGHT
Shipped Safely in Corrugated

This electric motor, small as it is, requires more than casual packaging attention. It must have a super-strength box, especially designed to accommodate the uneven contour of the housing. H & D package engineers worked out this low-cost, easy-to-pack, two-piece unit, adding interior packing to give complete protection against all shipping hazards. Let H & D solve your packaging problems!

When inquiring check CP 2838 on handy form, pgs. 2-3

NEW SOLUTIONS of processing problems

**Continuous system prevents
build-up of sludge in
pump seal oil . . .**

centrifugal oil purifiers play big role in process for making aromatic chemicals

Problem: Seal oil of vacuum pumps used in making aromatic chemicals at Harold L. Simons, Inc., Long Island City, became contaminated with sludge remaining in the oil after it had been processed in vacuum still to remove volatile solvents and water. These aromatic chemicals are used to impart aroma and flavor to various other chemicals.

Attempts at cleaning oil with fuller's earth filter were not successful. The filter clogged up too fast, and it was not desirable to drive off the moisture by means of heat and vacuum. The fuller's earth filter process could not properly remove the water.

Solution: Company designed a purification system that makes use of De Laval "Uni-Matic" Centrifugal Oil Purifiers for removing the sludge. Contaminated seal

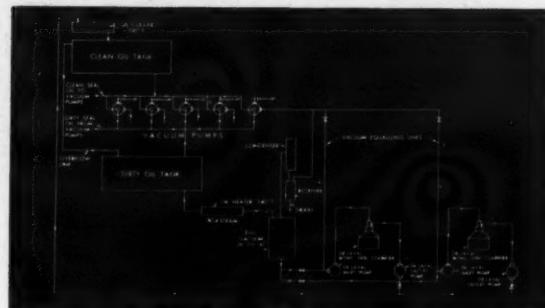


Diagram of vacuum-pump seal-oil purification system

oil from vacuum pumps is run into a dirty-oil tank at about 100°F. From the tank, it goes to a heat exchanger, at flow rate of 120 gph where it is heated to 240°F with 80-psi steam.

After heating, oil goes to a still where water and all volatiles having boiling points of 140 to 338°F are removed under 29-30" Hg vacuum. It is after removal of the water and volatiles that the oil is pumped, at 240°F, to either of the two centrifugal purifiers. Since all water has been removed from the oil before it reaches the purifier, the water discharge of the unit is closed off.

Although the purifier inlet pump has a 225-gph capacity, volume of oil passing through machine is limited to about 120 to 150 gph due to the high vacuum in the still. A vacuum balancing line is installed from vacuum side of vacuum pump on seal oil still to a point directly adjacent to the inlet of suction pump on each purifier.

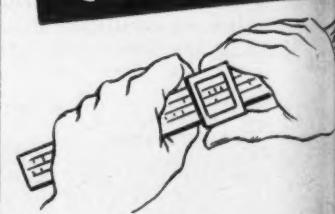
Purified oil is returned to clean-oil tank through a cooler which reduces temperature to approximately 95 to 100°F. This tank feeds the bank of vacuum pumps.

Results: Oil can be safely used again and again, all sludge and water being very satisfactorily removed by the purification system.

An important feature of the system is that any volatile acids present are eliminated before oil reaches purifiers. Thus, corrosion is not a problem.

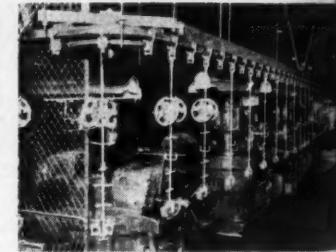
Source: "Uni-Matic" Oil Purifiers are made by The De Laval Separator Company, Dept. CP, 165 Broadway, New York 6, N. Y. . . or for more information check CP 2839 on handy form, pages 2 and 3.

**Buschman
TROLLEY
CONVEYORS**



**"Custom-built
installations"**

**AT "READY-MADE"
PRICES**



Modernize . . . mechanize your production with Buschman Universal Cable Trolley Conveyors. Stock units at low cost can be adapted to your special needs with no disruption of production or present facilities. Easily installed from standard sections . . . completely field-bolted. . . . require no welding.

For light and medium loads Cable Trolley Conveyors by Buschman are efficient, durable and far less costly than conventional chain conveyors. Buschman Engineers will gladly show you—at no cost—how the Universal Cable Trolley Conveyor can be "tailored" to your needs.

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Installations**

3" T. JR. Track

Double Duty Trolleys on Steel Cable

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Take Up Units

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**Buschman
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THE E. W. BUSCHMAN COMPANY, INC.
Spring Grove & Clifton Ave.
Cincinnati 32.

When inquiring check CP 2840
on handy form, pgs. 2-3

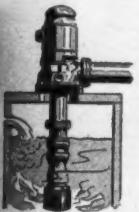
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STOP and CONSIDER the
FLEXIBILITY
of the
**Peerless Vertical
Turbine Pump**

1. AS A DEEP WELL PUMP



For a dependable source of clean water, Peerless Vertical Turbine Pumps are recognized leaders in the field; noted for their adaptability to widest pumping conditions. Install these deep well pumps with the type of drive most suitable to your application. Capacities from 15 to 30,000 g.p.m. are obtained from all practicable depths.

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You're assured of full turbine pump utility and capacities with an extremely compact installation. Ideal for pumping from short or medium settings; capacities up to 30,000 g.p.m. are delivered from sumps, pits and surface water sources. For booster service, circulating, de-watering and a host of other applications.

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Install this versatile Peerless Vertical Turbine type Fire Pump, with proper fittings, for a permanent and reliable water supply for adequate plant fire protection. Underwriters approved, these pumps produce from 500 to 2000 g.p.m. against heads to 285 ft. Extremely simplified in piping arrangements.

Engineering Information Available on All Three Vertical Turbine Types

Write to nearest office stating what your pumping conditions are; give diameter and depth of well, distance to water, capacity desired, total head, type of lubrication (oil or water) and type of drive. The bulletin that specifically describes the pump to fit your specific needs, together with appropriate engineering data will be furnished. Plan with Peerless Vertical Turbine Pumps!



PEERLESS PUMP DIVISION

Food Machinery Corporation

Food Machinery and Chemical Corp.
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Ga.; Omaha, Neb.: 4330 Leavenworth Street; Dallas 1,
Texas; 3005 Elm Street; Fresno, Calif.; Los Angeles 31,
Calif.

When inquiring check CP 2841
on handy form, pgs. 2-3

NEW SOLUTIONS of processing problems

**Tow 1 1/2 ton skids of leather
with 40" w. b. tractor and
save 60% in manpower . . .**

design special truck for service in building where narrow aisles, construction bar heavy equipment

Problem: Mid-west leather company moved a large part of its material through processing on semi-live skids. The structure of the building and narrowness of aisles did not permit use of large powered equipment. This resulted in excessive man-hours, in relation to the volume of material moved.

Loaded skids, each weighing about 3000 lbs, had to be moved a distance of 300'. Two or three men were required to push each skid and total tonnage that could be handled daily in this manner was only about 75.



40" wheelbase tractor moves 3000 lb skid loads

Solution: An industrial truck manufacturer was called in for consultation. After studying the problem, he developed a small, low-cost electric tractor, designed to lift and pull these skids. It is powered by a 10-cell Edison C-6 battery, which runs one complete shift without re-charging. Wheelbase of only 40" gives the truck excellent maneuverability; is short enough for efficient use where space is restricted.

Truck is backed up to the tongue of a semi-live skid. By means of a hydraulic jack built onto the rear of the truck's frame, the front end of the skid is lifted.

Serving as a tractor, the truck then pulls the skid behind. By merely pressing buttons on the handle by which he guides the truck, the single operator easily and quickly moves the heavy skid to its destination.

Two speeds forward, 2 speeds in reverse, and dynamic brakes are all controlled by these finger-tip buttons. Differential transmission is sealed in lubricant. Rated capacity is based on pulling semi-live skid loaded with 4,000 lbs.

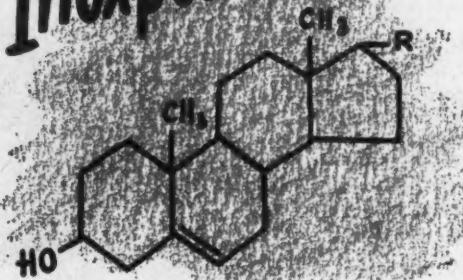
Results: Where two or more men were required to move one skid over an average trip, one now handles the job with much greater speed and much less effort. Maneuverability is reported to be excellent.

Adaptability of the truck to the skids already in service eliminated necessity for replacing them, as had at first been considered necessary.

Superintendent of the plant states that average saving in man-hours is 60%.

Source: Model "KTL" Electric Tractor is a development of Lift Trucks, Inc., Dept. CP, 2425 Spring Grove Ave., Cincinnati, Ohio . . . or for more information check CP 2842 on handy form, pages 2 and 3.

Sterols are Inexpensive Now!



Many animal and vegetable oils owe their valuable chemical properties to the sterol family of tetracyclic alcohols.

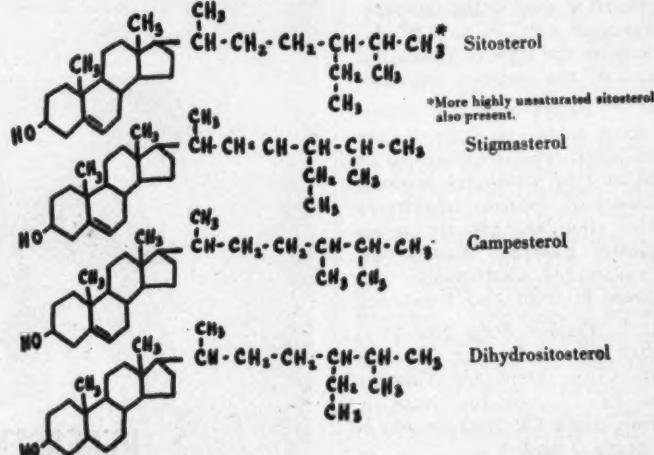
But sterols from animal sources have been costly.

Now, for the first time, you can get purified vegetable sterols (from soybean oil) in tonnage quantities.

DPI will be glad to send you a free sample of soy sterols. Use it to investigate the ability of sterols to stabilize oil-in-water and water-in-oil emulsions, to serve as raw material for the synthesis of surface-active agents and pharmaceuticals.

Our quotation will revise your thinking about the cost of sterols in industrial processing.

Constituents and Properties of DPI Soy Sterols



Percentage Unsaponifiable

Appearance

Melting Point

Bromine Number

Solubility (room temperature)

Acetone

Ethanol

Ethyl Ether

95% minimum

Fine white crystals

135°C-138°C

500 grams/kilo (app.)

2 grams/100cc

2 grams/100cc

10 grams/100cc



DISTILLATION PRODUCTS, INC.

Subsidiary of Eastman Kodak Company

753 RIDGE ROAD WEST • ROCHESTER, NEW YORK

When inquiring check CP 2843 on handy form, pgs. 2-3

NEW SOLUTIONS

**Cut stripping time of high-bake
resistant finishes to
3 minutes . . .**

recover parts rejected for finish flaws, discoloration

Problem: High bake, acid- and alkali-resistant finishes were being used by an eastern organization, and stripping of parts rejected for finish flaws or discoloration consumed too much time. This matter was particularly severe because of the color matching problems experienced with the new metallic finishes.

Solution: A new paint stripper, Quaker Strip No. 15, can be used either as received or as a water dilution. This depends upon the type finish being removed. It is used to strip rejected parts that otherwise could not be reclaimed, and to strip parts on a production basis where discolorations of the finish become an appreciable factor in production. In the last case, the stripper has been employed as part of the conveyor-ized painting cycle, so that parts outside specifications from the standpoint of color can be automatically stripped and re-cycled to the paint-spraying booths and ovens. This material is used in the temperature ranges of 160° F. to 230° F., dependent on the type of finish and the speed of the stripper required.

Results: Paints normally requiring 4 to 8 hours to strip in the standard alkali type strippers can be stripped in 2 to 3 minutes, without the necessity of resorting to solvents and their attendant toxicity, odors or explosive hazards. Paints normally considered unstrippable can be removed in from 2 to 3 minutes.

Source: Quaker Strip No. 15 is a product of the Quaker Chemical Products Corp., Dept. CP, Conshohocken, Pa. . . . or for more information check CP 2844 on handy form, pages 2 and 3.

**Set many sizes of rubber type
quickly in corrugated
base holder . . .**

speeds stamping of boxes, cases and cartons

Problem: Manufacturer had to use a number of rubber stamps on boxes and cartons to identify product as to color, size, number of lots and quantity. These stamps were necessary to produce the particular combination of letters and numbers required by each case. An adequate supply of numerals in range 0-9 were needed, as well as sufficient

for ALL your CORROSION-



"ZEPHYRWELD"® WELDING FITTINGS

Stainless Steel Type 304,
347 and 316—Inconel and
other SS analyses

Fabricated in I.P.S. and O.D.

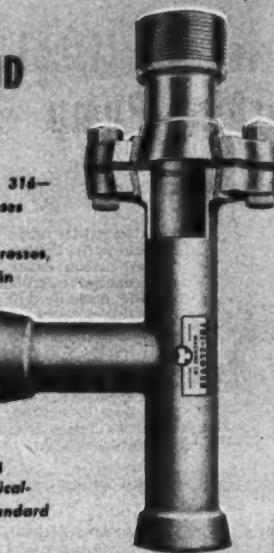
Tube Size from $\frac{1}{4}$ in. thru 24 in.—in elbows, tees, crosses, welding nipples, flanges, adapters, etc. Features: Streamlined, sweep oil construction; free-flow; light weight, fully annealed and passivated. Widely used in broad chemical process use.

*Trade Mark Registered

CONICAL END FITTINGS

Stainless Steel Type 316—
Inconel and other SS analyses

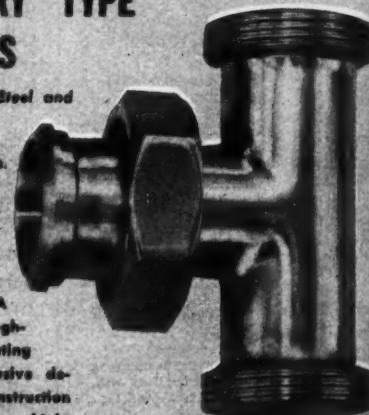
Complete line of elbows, tees, crosses, flanges, reducers, etc., in sizes from 1 in. O.D. thru 4 in. O.D. Features: Light weight—low cost—simple, fast installation—leak-tight—sturdy flanges of all types for every application—easily adapted to all other fitting types. (View shows conical-end tee flanged to standard I. P. S. threaded adapter.)



RECESSED-END FITTINGS

Stainless Steel Type 304-347-316

Low cost, light weight fittings designed for fast, simple soldering, brazing or socket welding, in sizes from $\frac{1}{4}$ in. thru 24 in. Full line of elbows, return bends, tees, crosses, adapters, etc.



"SANITARY" TYPE FITTINGS

Stainless Steel and
Tri-Alley®

Sizes from 1 in. thru 4 in. O.D., in full range of fitting types. Designated and approved as meeting 3 A Standards throughout, incorporating numerous exclusive design and construction features that assure highest quality.

(Nickel Alloy)

Stocks of Standard Fitting Types Strategically Located Throughout the Country



FOR FITTINGS THAT FIT YOUR
NEEDS . . . CALL - WIRE OR CLIP
THE COUPON FOR QUICK ACTION

O-RESISTANT piping problems!



FLANGED and SCREWED FITTINGS and VALVES

Stainless Steel Type 304-347-316

Complete range of fitting types. This quality line meets the demand wherever flanged and screwed fittings and liquid lines are required. Clean-cut, accurate threads match standard I.P.S. piping.

SPECIALIZED MANUFACTURING FACILITIES



When it comes to expert welding and fabricating of complex assemblies, you just can't beat the speed and accuracy offered with TRI-CLOVER'S exclusive Heli-Arc Atomic Hydrogen Welding . . . a specialized semi-automatic process that assures highest quality and FULL corrosion resistance. Shown here are a few typical examples of the wide variety of jobs we handle every day.

Tri-Clover Industrial Centrifugal Pumps — for every corrosion problem — complete range of capacities up to 1250 GPM and up to 250 ft. head.

• COMPLETE ANNEALING FACILITIES •

To: TRI-CLOVER MACHINE CO., Kenosha 3, Wisconsin
Send me more information on the following:

- ZEPHYRWELD Welding Fittings
- CONICAL END Fittings
- RECESSED-END Fittings
- "SANITARY" Type Fittings
- SCREWED Fittings and Valves
- PUMPS

PIPE and TUBING
 Custom fabrication of (type of unit)

Name Title

Company

Address

City Zone State



NEW SOLUTIONS

type covering the entire alphabet. These were used in familiar type of slot stamp.

Time required to change type, and difficult spacing of words and numbers were handicaps. Also, after being used a short time, these slot stamps gave uneven impressions as bases of the type and slots became worn.

Using a number of stamps in the routine operation was tedious and sometimes led to errors. Limited speed at which marking was done delayed movement of finished goods.

Solution: A new marking idea offered a means of quick, easy assembly of rubber type. One base handles a variety of interchangeable type faces and sizes.

Holders of any size can be made to accommodate as many sizes and lines of type as the user requires.

Type is easily put in place in holder by pressure applied by thumb and index finger. The corrugated base, also case in rubber, grips type and automatically locks it in place. One base takes all sizes of type from $\frac{1}{8}$ " to 3". Type cannot slip under printing pressure and spaces are not required.

This marking system, using new type and holders in required sizes is so flexible that this manufacturer now can quickly meet any new requirements that may arise.

Various types of holders may also be employed, such as roller markers for high speed marking. Also, the rubber type can be adapted to hand presses, marking machines, printing wheels and any type of conveyor line where coding is done.

Results: By eliminating the use of a number of stamps by each worker, capacity has been increased 31%. Where it is necessary to assemble a new set-up in the holder this is done quickly and easily. Moreover, the type continues to give clear, legible, evenly spaced stampings, even after prolonged use. Time element of ordering new stamps is eliminated.

Source: Base-Lock Rubber Type and corrugated holders are a development of Krentel Mfg. Co., Dept. CP, 227 Fulton St., New York 7, N. Y. . . or for more information check CP 2845 on handy form, pages 2 and 3.

For more information on product advertised at left, specify CP 2846 . . . see information request blank between pages 2-3.

NEW SOLUTIONS of processing problems

makes it necessary to change speeds of all meters in proportion. It is interesting to investigate how all this is done.

Drive motor is connected to input shaft of Link-Belt PIV variable-speed drive by silent chain. Output shaft of PIV is coupled to input shafts of four PIV units, one for each pulp meter. This forms a line shaft, to which are connected (1) input shaft of Link-Belt VRD variable-speed drive which drives smaller meters for clay, rosin size, etc., and (2) input shaft of a gear-reducing mechanism used for colors, etc.

Output shafts of the various intermediate PIV units are coupled to gear-reducers and then by roller chain drives to horizontal rotary meters.

Knowing capacity-per-revolution of each meter, the system is calibrated by taking speed readings of individual meter for each dial position of its PIV or VRD when master PIV, attached to drive motor, is at midpoint. Curves are prepared to show percentage of each pulp which will be delivered for each dial position. Similar calibrations are made on meters for size, clay, etc.

From the plotted curves, operator knows exactly where to set each variable-speed unit to obtain desired specifications in final paper. Setting of the master PIV changes total volume flowing to paper machine, permitting control of caliper or basis weight of the paper sheet. In some instances, the motor of the proportioning system can be synchronized with motors of the paper machine, making it unnecessary to change setting of master PIV when changing speed of paper machine.

It must be borne in mind that all pulps going to proportioning unit have been reduced to slush form, and that they have received requisite "brushing" or "beating", aside from final handling in Jordan before going to paper machine. Consistency of each pulp is automatically controlled by consistency regulator as it is pumped to respective meter compartment. Quantity delivered to each compartment is automatically controlled as to volume by direct-acting float valve.

Results: Power is saved: the 50 or more HP required by beater is replaced by 1½ HP required by proportioning system. Once speed controls are set, a regular attendant is not required as was the case for batch proportioning in beater. Floor space requirements are less: the system occupies space of about 8' x 12' x 6' high.

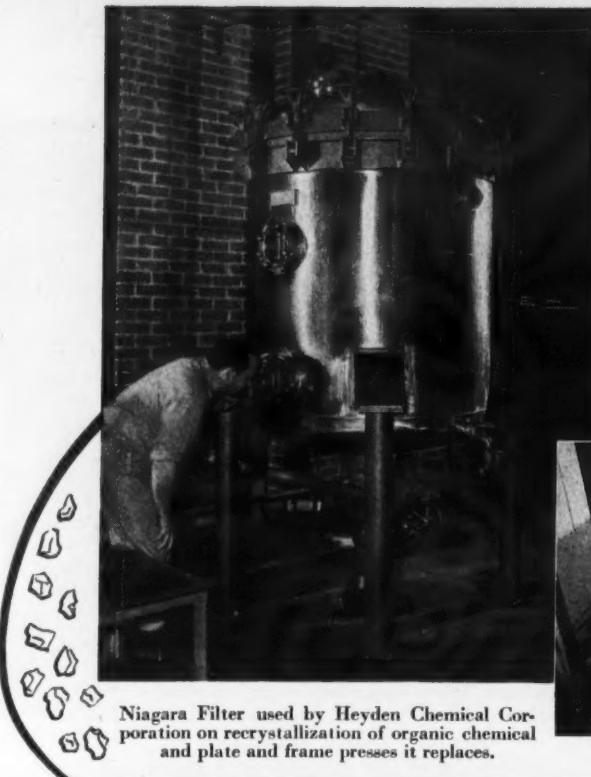
Accurate and continuous proportioning results in better running conditions on paper machine, greater uniformity of product and increased production. Recording counters on meters provide accounting department with accurate figures on consumption of pulp.

Source: Continuous metering and proportioning systems are made by Trimbley Machine Works, Dept. CP, Glens Falls, N. Y. . . . or for more information check CP 2849 on handy form, pages 2 and 3.

Gives data on miniature variable-speed drive

Miniature adjustable-speed drive is detailed in 2-page bulletin. Range of speed adjustment is from 6:1 increase to 6:1 decrease. Tables and charts show efficiency, input and output torques plotted against speed ratio, speed ratio plotted against adjustment turns, etc. Dimensional drawings show construction.

Bul. 99, issued by Metron Instrument Co., Dept. CP, 432 Lincoln St., Denver 9, Colo. When inquiring specify CP 2850 on handy form, pages 2 and 3.



Niagara Filter used by Heyden Chemical Corporation on recrystallization of organic chemical and plate and frame presses it replaces.



Recrystallization of Heyden Organic Chemical Simplified by NIAGARA FILTER

One Year's Savings Pays for Niagara!

A new technique in the recrystallization of organic chemicals has been adopted by Heyden Chemical Corporation with the aid of a Niagara Filter, resulting in economies in equipment, materials, time and labor.

One all-stainless-steel Niagara Filter with 512 square feet of filter area replaces more than 900 square feet of plate and frame press area—does a better job, quicker, with one-man operation (instead of four) and with the elimination of cloth replacement and other maintenance expense . . . a reduction in cost that pays for the Niagara Filter out of one year's savings.

The new filter quickly separates crystals from the crude "mother liquor," after which the filter itself is used for recirculation of hot water through the crystalline filter cake until all the pure crystals have been redissolved. Thirty cubic feet of these crystals are processed in less than two hours without the

need of opening and cleaning the filter, and without the need of a separate dissolving tank. Just another case where a Niagara Filter replaces a messy, laborious filtration job with a simple, clean and economical operation.

Niagara Filter design and construction, which eliminate the need for cloths, provide flowrates 2 to 5 times higher than ordinary presses, and reduce maintenance cost. Compact vertical design saves floor space. Completely enclosed, they prevent product contamination, are ideal for toxic, flammable and explosive materials.

Niagara engineers who have helped to solve many chemical filtration problems are anxious to help you with your filtration problems. Laboratory sample test facilities and a pilot filter rental service are only part of Niagara's complete filtration engineering service. Send coupon for Bulletin G-447 or information on pilot rental service.



NIAGARA FILTER CORP., 3083 Main St., Buffalo, N. Y.
Please send me details of Niagara Pilot Plant Filter rental Bulletin G-447

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____

When inquiring check CP 2851 on handy form, pgs. 2-3

Non-flammable Liquid Solves Problem of Heating A Process to Exactly 575°F

Liquid heat-transfer medium is sufficiently fluid at room temperature to be handled with a centrifugal pump

PROBLEM: Chemical manufacturer developed a new process which required heating to 575°F. Materials processed are sensitive to temperatures not too far above 575°F; hence, direct-fired gas heat could not be considered.

Electrical heating, using coils or strips, was considered, but costs were high. Possibility of local overheating caused by buildup of deposits of material being heated, made this method of heating undesirable.

To attain desired temperature with steam would require steam pressure of 1265 psi, obviously too high for practical operation. Other vapor-phase heating mediums were considered, but most of available mediums for heating to 575°F and over are inflammable. Fire hazard which would be incurred by use of such heat-transfer mediums, could not be tolerated in building where process was to be installed.

Solution: Properties of non-flammable liquid Aroclor 1248, a chlorinated biphenyl (registered in U. S. patent office), were explored and found so satisfactory that a circulating heat-exchange system was designed using it as the heat-exchange fluid. Aroclor 1248 is a partially chlorinated biphenyl which has a boiling point of 644°F, well above temperature required for process.

Its pour point is 19.4°F; at room temperature its viscosity (550 Saybolt seconds at 68°F) is low enough so that it can be handled in a centrifugal pump. At 575°F it flows like water. In the design of heat-exchange system, motor on circulating pump was made slightly oversize to avoid overloading when starting up system cold.

High density of Aroclor (sp. g. is 1.45 at 77°F) necessitates careful design of inlet connections to pump to avoid cavitation. Its specific heat is 0.405 at 212°F. and 0.44 at 248°F.

Heat to circulating system is supplied by gas-fired furnace. Aroclor 1248 is non-corrosive to practically all metals including copper and copper alloys, bronze and brass. Standard steel pipe was used in fabricating furnace "coils." Heated length of 1-inch pipe in "coils" is 90 feet. Overall size of furnace, rated at 200,000 BTU per hour, is 69 inches long, 16 inches wide, and 27 inches high.

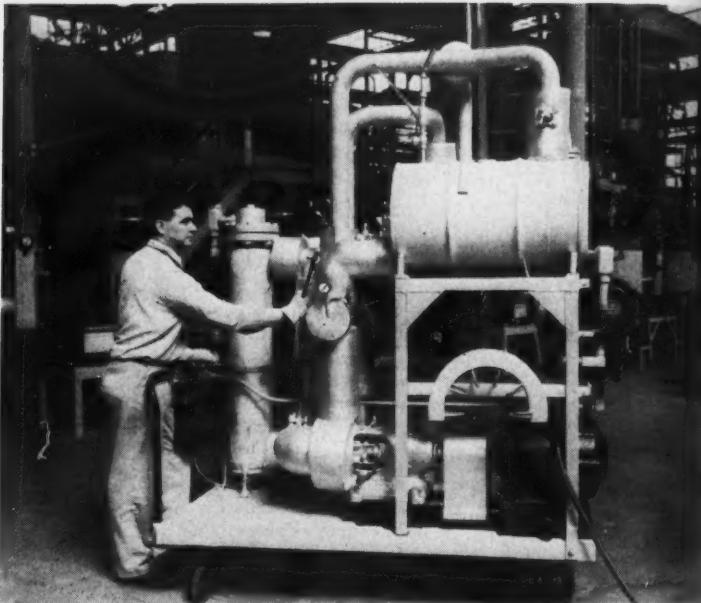
Controls on heating system cut off gas flow to burner in furnace if temperature of heat-transfer liquid goes above 595°F, or in case circulating pump stops.

Results: Heating requirement of process—uniform heating to 575°F without danger of overheating—were completely satisfied. Heat transfer medium, Aroclor 1248, has been unaffected by operations. Neither carbonization nor loss have been observed.

Portable unit, electrically heated, supplies non-flammable, heat-transfer medium for heating to 575°F in pilot-plant processes. Capacity: 40,000 BTU per hour.

Non-flammability of organic compounds is more or less of a relative term. Aroclor 1248 does not support combustion, but it does have an ignition temperature of 1299°F. That this temperature is high enough to be on safe side was demonstrated by an incident which occurred in a heating installation.

In this installation, heating system did not have interlocking controls requiring that circulating pump be operating when burner is on. Failure of operator to start circulating pump when he lit burner resulted in excess coil temperature, sagging of steel pipes into fire chamber and rupturing of welds. Aroclor 1248 poured into red hot fire chamber. Except for black smoke, which stopped when gas was cut off, no other damage occurred.



Another heating application of Aroclor 1248 is illustrated in accompanying photo, which shows a portable heat-exchange unit. Heat to liquid medium is supplied electrically. High temperatures in jacketed kettles and other vessels used in pilot-plant studies, can be obtained by simple pipe changes and connecting heater unit to an electrical source.

Source: Aroclor 1248 is one of the partially chlorinated biphenyls manufactured by Monsanto Chemical Co., Dept. CP, St. Louis 4, Mo. . . or for more information check CP 2852 on handy form, pages 2 and 3.

Reactive Long-chain Alcohol Commercially Made

High-purity trimethylhexanol acts as intermediate for plasticizers, synthetic oils, lube-oil additives

USES: Intermediate for many applications. Some of the products which can be made from this alcohol are plasticizers, synthetic lubricants, lubricating-oil additives, wetting agents, high-boiling solvents, and driers for inks and other compositions containing drying oils.

Features: Manufactured on commercial scale as single substance of high purity, not a mixture of isomers.

Description: Trimethylhexanol, 9-carbon primary alcohol, esterifies with carboxylic acids, sulfating agents, phosphorus pentasulfide and phosphorus pentoxide. It reacts with halogen acids and undergoes dehydration, dehydrogenation and other reactions characteristic of primary alcohols with 6 to 10 carbon atoms.

Many of the esters of this alcohol are effective plasticizers.

for polyvinyl chloride, polyvinyl acetals, ethylcellulose, cellulose acetobutyrate and nitrocellulose. With the proper trimethylhexyl ester, plasticized vinyl compositions can be obtained which have good heat resistance, low-temperature flexibility, and excellent hand drape.

Certain trimethylhexyl esters are adaptable for use in vinyl resin plastisols that are spreadable at room temperature, but form tough, homogeneous films and coatings upon heating. Plastisols prepared with phthalic and adipic esters of the alcohol have exceptionally long working life, it is reported.

Polymerization of certain esters yields oil-soluble resins such as polytrimethylhexyl acrylate and polytrimethylhexyl methacrylate, useful in improving viscosity index of lubricating oils.

Sulfation and treatment with aqueous sodium hydroxide gives trimethylhexyl sodium sulfate, a product with properties of a wetting agent. Good yields of aldehyde are produced by dehydrogenation of the alcohol. The aldehyde can be oxidized to trimethylhexanoic acid, from which esters with possible application as high-boiling solvents and plasticizers can be made.

Salts of the acid are obtained by reaction with metallic oxides or hydroxides or by exchange with acetates. Cobalt and lead salts are effective driers for inks, etc. Wide variety of polyethers, nitrogen compounds and halides are obtained by reacting trimethylhexanol under suitable conditions.

Boiling point of trimethylhexanol is 190°C. It is not soluble in water, and it is a colorless and mobile liquid. Has a mild odor.

Source: Being produced by E. I. du Pont de Nemours and Company (Inc.), Dept. CP, Wilmington 98, Del. . . . or for more information check CP 2853 on handy form, pages 2 and 3.

Produces strongly basic anion exchanger on full scale . . .

splits neutral salts completely, adsorbing negative ions from solutions at pH 1-10; high exchange rate

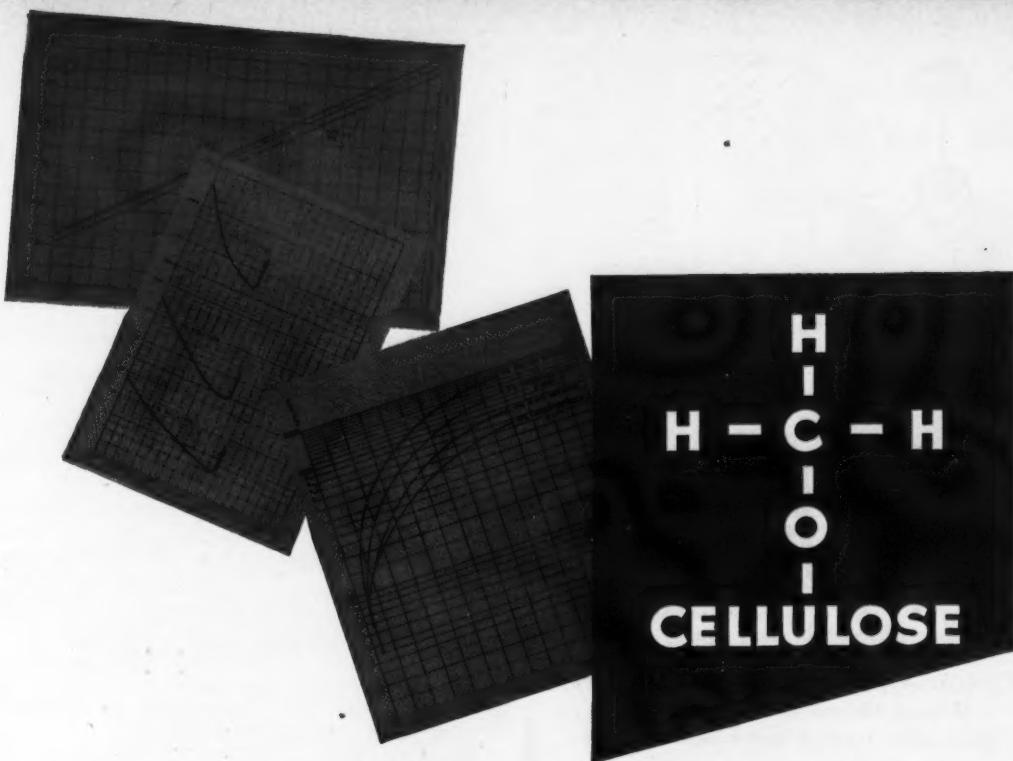
Uses: Anion exchanger for treatment of water and other liquids.

Features: Splits neutral salts completely, converting them to corresponding free bases of the metallic ions. Adsorbs negatively charged ions from acid, neutral and even mildly alkaline solutions — pH from 1 to 10. Exchange rate is reported to be very high. Capable of adsorbing all amino acids with isoelectric points below pH 10.

In de-ashing operations, exchanger can be used for removing anionic impurities first, permitting safe treatment of solutions which would be adversely affected by exposure to low pH. Manufacturer states that the resin can be mixed intimately with strong cation exchanger to prepare adsorbent bed that will deionize solutions completely in one step.

Description: Production of this strongly basic anion exchanger, Amberlite IRA-400, is now on full plant scale. One of its important applications is direct removal of silica from feed water for high-pressure boilers. The exchanger behaves as solid caustic with its hydroxyl ions only in solution.

Source: Produced by Resinous Products Division of Rohm & Haas Company, Dept. CP, Philadelphia, Pa. . . . or for more information check CP 2854 on handy form, pages 2 and 3.



What can Methocel do for you?

Methocel, a cold water-soluble cellulose ether yields neutral solutions in a wide range of viscosities, varied to suit diversified applications. Methocel is outstanding as a thickener, suspending agent and emulsion stabilizer. It also serves as an excellent binder and film former. Countless diversified industries including rubber, paint, leather, paper, ceramics, soap and cosmetics, and the drug industry find Methocel of value.

Investigate the *new* METHOCEL now available in powdered form to facilitate its use. Send for free, experimental sample of the *new* METHOCEL, *powdered*.

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

When inquiring check CP 2855 on handy form, pgs. 2-3



If you have a problem that may be solved through the use of highly activated chemically treated materials — catalyst — adsorbent — desiccant — Filtrol process engineers will gladly help you.

Scientific advancements are pointing the way to new opportunities for American businesses who have the need and desire to improve present processes and pioneer new techniques.

Filtrol process engineers have the know-how in the broad field of highly activated chemically treated materials. This has led to the perfection of many new processes in the chemical industry, such as developing a suitable catalyst to be used in the manufacture of synthetic resins from crude petroleum distillates.

If your problem can be solved through the proper formularization and application of a catalyst, adsorbent or desiccant, our experience, technical background and manufacturing know-how may supply that "something missing" in your current development program.



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CORPORATION

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WORLD'S LARGEST QUALITY MANUFACTURER
OF CATALYSTS, ADSORBENTS AND DESSICANTS

When inquiring check CP 2856 on handy form, pgs. 2-3

Page 18

Sludging and Coking Minimized with Heat-transfer Fluids

Synthetic media easy on various rubbers, packings; viscosity indices are 142 and 150

USES: Fluids for transfer of heat. Being used in temperature range of 60 to 500°F.

Features: Resistant to sludging and coking. Viscosity indices are 142 and 150. Effect on various types of rubber and packings is at minimum.

Description: Ucon 50-HB-280-X and LB-300-X are two of a series of heat-transfer fluids synthesized from polyalkylene glycols and derivatives. The first is water-soluble and the second is not. Compounds are different in chemical composition and performance from petroleum oils, the silicones, and the synthetic oils developed by Germany during the war.

50-HB-280-X is specifically for high-temperature applications. It has viscosity of 280 Saybolt Universal seconds at 100°F, and is being used in extrusion equipment for rubber and plastics as well as in constant-temperature baths. No trouble from carbonization or sediment-formation has resulted after long periods of continuous service.

This product has a solvent effect on sludges and varnishes caused by petroleum oils. In some cases, coke deposits on electric heaters and other surfaces have been removed after changing to the fluid. This is due to the solvent effect on the coke binders. Cold-water flushing removes 50-HB-280-X from surfaces of heat-transfer units.

While experience has been limited to temperatures not

PROPERTIES OF HEAT-TRANSFER FLUIDS

50-HB-280-X LB-300-X

Viscosity, Saybolt Seconds	50-HB-280-X	LB-300-X
400°F	37.3	35.9
300°F	44.5	42.7
210°F	64.6	62.7
100°F	280	300
0°F	11,400	18,380
Pour Point, °F	Minus 35	Minus 40
Coeff. of Expansion, °F, 68°F	0.00042	0.00042
Density, gm/cc @ 210°F	0.976	0.933
100°F	1.024	0.979
60°F	1.041	0.996
Flash Point, Open Cup	500°F	490°F
Fire Point, Open Cup	600°F	585°F
Spontaneous Ignition Temperature	745°F	745°F
Thermal Conductivity		
Btu/hr/sq ft/°F/ft @ 122°F	0.0924	0.0847
194°F	0.0922	0.0842
Specific Heat @		
0°F	0.41	0.41
100°F	0.45	0.45
200°F	0.50	0.50
300°F	0.54	0.54

exceeding 500°F in closed systems, indications are that these fluids can be used at temperatures above this in properly designed closed systems.

Source: Carbide and Carbon Chemicals Corporation, Unit of Union Carbide and Carbon Corporation, Dept. CP, 30 E. 42nd St., New York 17, N. Y. . . or for more information check CP 2857 on handy form, pages 2 and 3.

Five Anionic Foaming Detergents Feature Stability, Improve Liquid Soaps

Each compound is stable in acid and alkali solutions, and unaffected by temperature changes

USES: As detergents, wetting agents, and dispersing agents. Other uses are improving performance of liquid soaps in hard water, aiding degreasing processes, as foaming agents, etc.

Features: Each compound is stable in acid and alkali solutions, is unaffected by temperature changes.

Description: Anionic foaming detergents are alkyl amide sulfonates. Antaron L-135 is mixture of alkyl amide sulfonate and sodium chloride, in light yellow pow-

der form. Soluble in water and electrolytic solutions, it is used for general cleaning operations and in washing woolens and other fine fabrics. May be blended into liquid soaps to improve performance in hard water. Compound not only increases detergency of the mixture, but also disperses insolubles formed between soaps and hard water. Has density of 0.54.

Antaron L-177 is more concentrated form of Type L-135, having density of 0.76. Other properties are the same.

Antaron N-185 is similar product, supplied as buff-white powder. Soluble in water and hard water, moderately soluble in electrolyte solutions. Stable in acids, alkalis, metal ion solutions, in boiling water, and on storage. Prevents curd formation of 2,4D amine salts in hard water, disperses metal salt precipitates, aids in steel pickling and in neutral or alkaline degreasing. Used as a base for bubble bath and shampoo compounds, and in many cleaning preparations.

Antaron L-114, a light yellow gel, has same stability and solubility as N-185, except that it is also moderately soluble in ethanol.

Antaron R-275 is a grey-white powder with density of 5.7. May be used as aid in non-alkaline metal degreasing, and as wetting agent in many applications. Good anti-spotting agent in film developing, and is used in emulsion copolymerization of Buna-S type synthetic rubber.

Source: The Antarons are produced by General Aniline & Film Corp., Dept. CP, 444 Madison Ave., New York, N. Y. . . or for more information check CP 2858 on handy form, pages 2 and 3.

Wear of exterior coating progresses slowly . . .

bakelite-reinforced product resists fumes, moisture, soot, smoke, temperature change

Uses: Protective and decorative coating for wood, metal, masonry and concrete exteriors.

Features: Improved wear-resistance; excels in protecting against acid and alkali fumes, smoke, soot, moisture and changes in temperature. Dries quickly to high luster, and maintains color for long service. One gal covers about 600 sq. ft. (one coat) when applied over non-porous surface.

Description: Bakelite-reinforced coating is applied by brush or spray and has very good self-leveling qualities. Hiding qualities are excellent on old or new surfaces. The tough, durable, elastic-like film adheres well and retains its elasticity. Eventually, the film disintegrates by chalking, leaving an ideal surface for repainting.

Upcolastic is made in a selection of colors, ranging from light to dark shades.

Source: Made by Upco Company, Dept. CP, 4803 Lexington Ave., Cleveland 3, Ohio . . . or for more information check CP 2859 on handy form, pages 2 and 3.

Reveals advantages of latex paper-coating adhesives

Synthetic latex, widely used as adhesive in clay coating of paper, is thoroughly discussed in 20-page, 2-color bulletin. Described as aqueous dispersion of styrene-butadiene copolymer, latex is said to have outstanding mechanical stability, be compatible with casein, soya protein, glue and most starches, and to improve flexibility and water resistance of these binders.

States that latex can be used on all types of existing coating equipment. Has high binding power. Bulletin gives physical constants; discusses adhesive characteristics, properties of resultant coatings, use in blends with soya protein and casein. Charts show strengthening effect of aging. Brochure tells of suitable color formulations.

Many photos show processing of paper with latex additive in coating. "Latex 512K", issued by The Dow Chemical Co., Dept. CP, Midland, Mich. When inquiring specify CP 2860 on handy form, pages 2 and 3.

Versatile? USP Glycerine has long been employed as a basic ingredient in the manufacture of tooth pastes . . . while one of its many derivatives (glyceryl trinitrate) serves modern medicine as an effective heart stimulant!

In hundreds of other drug and cosmetic applications, USP Glycerine has become the "indispensable ingredient." According to a recently published survey, 10% of all prescriptions compounded by pharmacists contain—USP glycerine. And for good reason! No other product can match this unique combination of properties: it's an emollient . . . a sweetener . . . a solvent . . . a softener . . . a humectant . . . a preservative. It is edible, nutritious and, in proper dilutions, can be safely applied to the most delicate membranes.

That's why—in a vast number of products that find daily use in the home and hospital—*Nothing takes the place of glycerine!*

GLYCERINE PRODUCERS' ASSOCIATION

295 Madison Avenue, New York 17, N. Y.

GLYCERINE PRODUCERS' ASSOCIATION, DEPT. 5
295 MADISON AVENUE
NEW YORK 17, N. Y.
I should like to know the source of those items
appearing in Technical Glycerine News which I
have checked below.

D-17 D-18 D-19

NAME _____
COMPANY _____
ADDRESS _____

Page 19

Technical
GLYCERINE NEWS

AN EFFECTIVE METHOD OF TREATING PERITONITIS by glycerine application is described in a recent medical paper. Drs. E. D. and R. W. Smith report in *The Southern Surgeon* that glycerine induces drainage from infected tissues and exerts antiseptic and bactericidal action on the bacteria of peritonitis. At the same time, it permits normal functioning of the body cells to promote healing. (D-17)

★ ★ ★
GLYCERITE OF HYDROGEN PEROXIDE originally developed for external treatment of infected wounds and such stubborn infections as tubercular abscesses—has now been found to be effective in combatting the organisms which cause tetanus and gas gangrene. It has demonstrated greater antiseptic activity against these organisms than 31 of 32 tested antiseptic solutions. (D-18)

★ ★ ★
NEW TOOTH PASTE contains glycerine as a major ingredient! One formula is comprised of quaternary ammonium compound, foaming agent, methyl cellulose, glycerine, tricalcium phosphate and calcium carbonate. Using the wet filter paper method at 37° C, this preparation killed *Staphylococcus aureus* organisms in 2 minutes (1:8 dilution). (D-19)

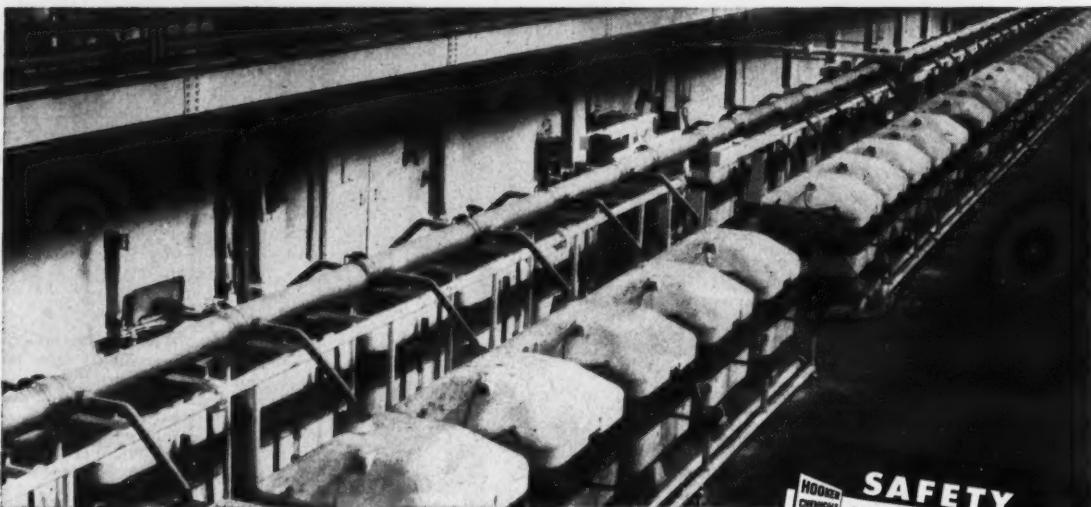
★ ★ ★
GLYCERINE SECTIONS OF BEILSTEIN TRANSLATED! Now available for the first time, an English translation of the Glycerine Sections of Beilstein's famous *Handbuch der Organischen Chemie* (4th Edition). Complete in one volume entitled "GLYCERINE AND SOME GLYCERINE DERIVATIVES."

Publication authorized by the Attorney General of the United States. Compiled and edited by Dr. R. N. DuPuis, Dr. C. S. Miner, Jr. and J. B. Segur—long acknowledged as authorities in the field of Glycerine and its properties. Amassed in its 210 pages are an unusually large number of Glycerine derivatives with extensive cross-references. Also included are a complete table of contents and a detailed index of the derivatives and fatty acid esters of Glycerine. A timely, comprehensive volume for your chemical reference library.

Order from the Glycerine Producers' Association enclosing \$2.50 (check or money order) for each copy.

When inquiring check CP 2861 on handy form, pgs. 2-3

Careful Buyers of Caustic Soda and Chlorine SPECIFY HOOKER



In the Hooker Electrochemical Company you have a dependable source for caustic soda and chlorine of high quality and constant uniformity. This is testified by the increasing number of users who year after year continue to secure their requirements from Hooker.

They have learned through experience that they can rely on these products of the famous Hooker "S" Cell. Produced under watchful control, each shipment is of the same uniform high quality. Through careful inspection and care of containers it reaches you in the same condition it leaves our plants.

Hooker Caustic Soda is available in solid, flake, or liquid form. Liquid is available in 50%, 73% and special grade solutions.

Hooker Liquid Chlorine, of standard market quality, is shipped in cylinders, multi-unit cars and tank cars.

For uniform processing from uniform Liquid Chlorine and Caustic Soda, specify Hooker.



Users of Chlorine will want a copy of the Hooker Wall Chart, "Recommendations for Safety in the Use and Handling of Chlorine in Cylinders and Ton Containers". Printed in large readable type on linen backed paper, it is ideal for mounting wherever you use or store chlorine.

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9-1061

From the Salt of the Earth

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SODIUM SULFIDE • SODIUM SULPHHYDRATE • SODIUM TETRASULFIDE • CAUSTIC SODA • MURIATIC ACID • PARADICHLOROBENZENE • CHLORINE

When inquiring check CP 2862 on handy form, pgs 2-3

MATERIALS

Properties, reactions, uses of cyanuric chloride

Cyanuric chloride, announced as available in pilot plant quantities, is thoroughly discussed in 36-page bulletin. Gives comprehensive outline of physical properties, complete with charts showing absorption spectra, vapor pressures, and solubilities.

Chemical properties are described, and many reactions are given. Includes discussion of reactions with alcohols, amines, mercaptans, sulfides, aryl halides, carboxylic acids, and many related compounds. Investigates reduction techniques, reactions with several laboratory reagents.

Outlines present and possible future uses, including service as intermediate in production of dyes, bleaches, drugs, plasticizers, resins, explosives, etc. New Product Bul. 5, issued by American Cyanamid Co., Dept. CP, 30 Rockefeller Plaza, New York 20, N. Y. When inquiring specify CP 2863 on handy form, pages 2 and 3.

Alloy has high tensile strength, hardness at temperatures as low as -423° F . . .

also withstands high temperatures; may be gas- or arc-welded without heat treatment

Uses: In process equipment, pipes, nozzles, etc. which require high tensile strength and hardness at very low temperatures.

Features: Maintains high tensile strength and hardness with little tendency to embrittlement at temperatures as low as -423° F.

Description: Austenitic cast ferrous alloy contains 19.50% chromium and 9% nickel among other constituents. Steel has shown no structural changes down to -423° F in hundreds of laboratory impact tests. Same tests have indicated appreciable increase in hardness directly proportional to the decrease in temperature.

Tensile strength varies directly with hardness. Ductility is lowered somewhat, but not in proportion to increase of tensile strength. Tensile strength is estimated to be approximately 200,000 psi at -423° F.

Alloy may be easily welded by either gas or electric processes without need for subsequent heat treating.

Alloy has already been used successfully in steel castings for pressure equipment in storage facilities for liquid oxygen used as propellant for rocket engines. Such storage is maintained at temps of approximately -298° F.

Castings of the new alloy, known as Grade 22, have also been employed in jet-engine components, supercharger parts, and other severe high-temperature applications.

Source: Developed and produced by Lebanon Steel Foundry, Dept. CP, Lebanon, Pa. . . or for more information check CP 2864 on handy form, pages 2 and 3.

Wood is waterproof after coating with lacquer . . .

finishing coating air-dries to tough, adhesive film in 5 min; may be force-dried in 1 min

Uses: Finishing lacquer for wood surfaces.

Features: Air-dries in 5 min; may be force-dried in 1 min with infra red lamps or other suitable drying equipment. Films are waterproof and may be submerged in

MATERIALS

water for extended periods without hazing or softening. Non-toxic coating remains permanently flexible and is not affected by expansion or contraction of wood surface.

Description: Synthetic lacquer dries completely free of blush or haze, even in extremely humid weather. Films formed by Rez-N-Cote may be cleaned with alkaline soaps and are immune to dilute acids. According to manufacturer, lacquer rates high in Schopper-Fold test, Sward hardness, checking, toughness and adhesion.

Available in clear form, or in transparent or opaque colors, coating is applied by brush or spray.

Source: Product of Schwartz Chemical Co., Inc., Dept. CP, 326-328 W. 70th St., New York 23, N. Y. . . or for more information check CP 2865 on handy form, pages 2 and 3.

Excellent corrosion resistance, hardness, strength combine in new stainless steel . . .

magnetic alloy hardens at temps from 850 to 1000°F, may easily be forged, welded

Uses: Especially recommended for gears, cams, bolts, valves, shafting and pump parts in processing equipment exposed to corrosives.

Features: Corrosion resistance approaches that of 18-8 stainless steel, yet alloy is not subject to intergranular corrosion and has hardness and strength of standard grades of hardenable stainless steel.

Description: Alloy contains 17% chromium, 4% nickel, 4% copper; is magnetic in all conditions. Alloy is 'precipitation-hardening' type, requiring only 1 treatment at 850 to 1000°F. Hardening cracks, distortion, internal stresses and objectionable scaling are eliminated by this low-temp. treatment.

Since only slight, easily removed temper color forms at these temps., parts may be finish-machined before hardening without necessity of expensive machining or grinding after hardening.

Alloy may be readily hot-forged; has good machining and welding properties. Known as Armco 17-4 PH Stainless Steel, the alloy is available as bar and wire in either annealed or hardened condition.

Source: Produced by Armco Steel Corporation, Dept. CP, Middletown, Ohio. . . or for more information check CP 2866 on handy form, pages 2 and 3.

Lists properties, uses of long-chain diols

Eight-page, 2-color bulletin covers new higher diols: butanediol, pentanediol, hexanediol, methylpentanediol, ethylhexanediol, methoxymethyl dimethyl pentanediol, and ethoxymethyl dimethyl pentanediol. Suggests uses as blending agents, plasticizers, moisteners, intermediates and solvents.

Tables list weights, specific gravity, boiling, freezing and flash points, viscosity and refractive index of each compound. Chart compares hygroscopicity of diols. Notes discuss specialized applications.

Bul. F-6719, issued by Carbide and Carbon Chemical Corp., Division of Union Carbide and Carbon Corp., Dept. CP, 30 E. 42nd St., New York 17, N. Y. When inquiring specify CP 2867 on handy form, pages 2 and 3.

Victor* Chemicals...in the bathroom!



Mail the complete coupon today

NEWS . . .

from Victor's Research Laboratories

Please Check

Victor Carbamide Phosphoric Acid consists of white rhombic colorless and odorless crystals. Mol. Wt. 158. One pound of carbamide phosphoric acid has the same acidity as one pound of 62% phosphoric acid. Carbamide phosphoric acid is an efficient catalyst for acid setting resins, and is used in acid type cleaners. It is recommended where a solid crystalline material equivalent to phosphoric acid is desired.



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Phosphates . . . Formates . . . Oxalates
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- 1 Dicalcium and tricalcium phosphates . . . dentifrice polishing agents.
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- 3 Diammonium phosphate . . . ammoniated dentifrices.
- 4 Formic acid . . . manufacturing drugs for the relief of allergies.
- 5 Sodium tripolyphosphate and tetrasodium pyrophosphate . . . builders in soap and detergents.
- 6 Phosphoric acid . . . rustproofing metals and as a bond for paint.
- 7 Victorawet® 12.35B and 50B . . . dye carriers and dispersing agents.
- 8 Calcium and iron phosphates . . . mineral supplements, capsules and tablets.
- 9 Phosphoric acid . . . electropolishing stainless steel and other metals.
- 10 Carbamide phosphoric acid . . . acid setting resin coatings for paper.

Name. _____ Title. _____

Company. _____

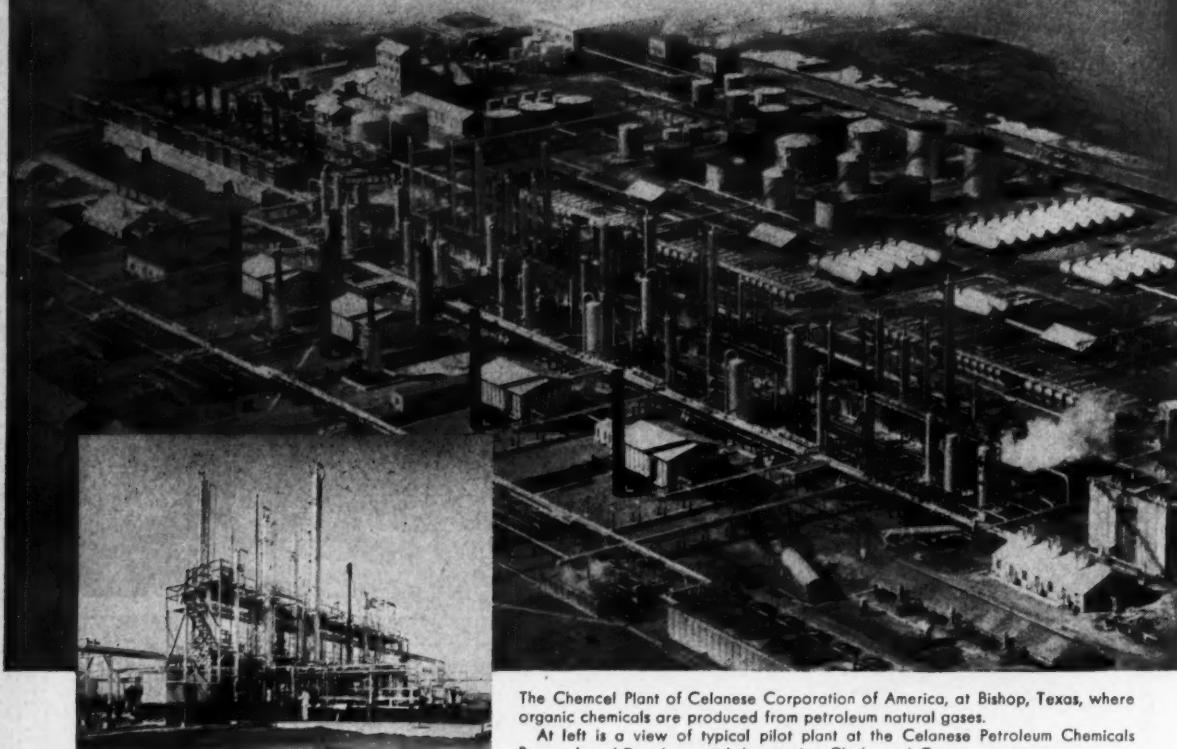
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V5

When inquiring check CP 2868 on handy form, pgs 2-3

More than just the chemicals you need



The Chemcel Plant of Celanese Corporation of America, at Bishop, Texas, where organic chemicals are produced from petroleum natural gases.

At left is a view of typical pilot plant at the Celanese Petroleum Chemicals Research and Development Laboratories, Clarkwood, Texas.

Look to Celanese Corporation of America for more than just the filling of your immediate order for organic chemicals. More than 17 years of research in petroleum chemistry and the most advanced plant facilities enables Celanese to understand, anticipate and meet your chemical needs.

Consider these advantages:

- VOLUME SUPPLY OF QUALITY-CONTROLLED ORGANIC CHEMICALS
- ASSURED CONTINUITY OF SUPPLY THROUGH ABUNDANT RAW MATERIAL SOURCES
- LOWEST POSSIBLE PRICES TO INDUSTRY
- DISTRIBUTION AND STORAGE FACILITIES AT STRATEGIC LOCATIONS
- CONTINUOUS RESEARCH AND DEVELOPMENT

ALDEHYDES • ALCOHOLS • ACIDS • GLYCOLS • KETONES • SOLVENTS • PLASTICIZERS

When inquiring check CP 2869 on handy form, pgs. 2-3

MATERIALS

Up-to-date review of enzymes, their chemistry and technology

"The Chemistry and Technology of Enzymes" is a 550-page book that treats in detail most of the known enzymes, their chemistry, industrial production and uses, and all industrial fermentations. Many developments of recent war years are included. Much new material on biosynthesis is incorporated.

Indexed volume is divided into 2 parts for easy use. Part I contains material on general chemistry and methods for estimation, necessary for fuller understanding of enzyme technology discussed in Part II. Author, Henry Tauber. Price, \$7.50 Published by John Wiley & Sons, Inc., Dept. CP, 440 Fourth Ave., New York 16, N. Y. Or, when inquiring specify CP 2870 in handy form, pages 2 and 3.

Fast, strong welding of mild steels with no-gap AC-DC electrodes . . .

electrode is pressed to metal and drawn along in straight line; finished bead is flat, smooth

Uses: For quick welding of thin sheet metals. Two types permit all-position welding and welding of flat and horizontal fillets. Third type permits underwater welding.

Features: Electrode is merely pressed against metal and drawn straight along without weaving. Resultant bead is flat and smooth, requires little finishing. Likelihood of burning through light gauge metals is rendered negligible. Saves up to 50% of electrode material.

Description: AC-DC no-gap electrode speeds operations by reducing operator fatigue, eliminating back and forth or weaving motions. Recommended for all mild steels and low alloy high-temperature steels.

Speed of operation simplifies maintenance repairs, production welding, etc. Slag lifts off after cooling, leaving weld clean and unoxidized. If finishing is required, flat, smooth bead is quickly ground to specifications.

Known as Eutec-Hand-Omatic, the metal has tensile strength of 70,000-80,000 psi. No. I, for all-position welding, is available in 3/32", 1/8" and 5/32" sizes.

No. II, for fillet welding, and No. III, for underwater work, are available in 1/8" and 5/32" sizes.

Source: Developed and produced by Eutectic Welding Alloys Corp., Dept. CP, 40 Worth St., New York 13, N. Y. . . . or for more information check CP 2871 on handy form, pages 2 and 3.

CORRECTION

In the July issue of CHEMICAL PROCESSING Preview, an article on page 19, (CP 1990) incorrectly described a new vinyl flooring tile, known as "Sanitile" as being manufactured by the Glenn L. Martin Co., Baltimore, Md.

"Sanitile" was developed and is manufactured by Interchemical Corporation. The technical service staff of the Glenn L. Martin Co. cooperated in the project and supplies the raw resin (Marvinol) used in producing this product.

Inquiries concerning the decorative tile which is impervious to soaps and alcohols, and features stability, resiliency and dimensional stability should be addressed to: Standard Coated Products Division, Interchemical Corporation, 350 Fifth Avenue, New York 1, N. Y.

MATERIALS

Offer standard gray machinery enamels; vinyl films . . .

enamel colors are fully specified; vinyl resists abrasion, corrosion

Uses: Vinyl finishes are for use on metal equipment, tanks, machines, etc. They can be applied on steel, aluminum and other metals.

Standard gray machinery enamels are for use on similar surfaces, where standardized colors are desired.

Features: The vinyl finish has very high resistance to abrasion, withstands moisture, corrosion, alkalis, acids and many fumes. Can be supplied as non-toxic coating.

Gray enamels are made to conform to machinery gray colors specified by ASA Mechanical Standards Committee. These specifications are computed from spectrophotometric data.

Description: Tuf-On vinyl systems are based on multiple coatings, formulated for adhesion, compatibility and optimum properties.

First coat is Tuf-On Pri-Met, special wash-coat primer which provides adhesion, and resistance to corrosion and rust-formation. Following this, either a red-lead anti-corrosion primer (for extreme conditions) or a color coat is applied. Finally, clear vinyl finish is applied to provide resistance to abrasion and chemicals.

Each gray enamel made by company is identified by Munsell notations which include hue, value and chroma. In addition to being closely standardized, these enamels are quick-drying and chemically resistant.

Source: Both products are made by Industrial Research Division, Brooklyn Varnish Mfg. Company, Inc., Dept. CP, 50 Jay St., Brooklyn 1, N. Y. . . or for more information check CP 2872 on handy form, pages 2 and 3.

Carbon-graphite compound

Sixty-four-page, wire-bound catalog covers uses, properties, etc., of Graphitar, carbon-graphite compound.

"Graphitar", issued by United States Graphite Co., Dept. CP, Saginaw, Mich. When inquiring specify CP 2873 on handy form, pages 2 and 3.

For more information on product at right, specify CP 2874 see information request blank between pages 2-3.

PENTEK®

PENTAERYTHRITOL (TECHNICAL GRADE)



FOR SURFACE COATINGS OF
BETTER HARDNESS, SUPERIOR
GLOSS AND COLOR RETENTION,
MORE RESISTANCE TO WATER
AND ALKALI

PROPERTIES

Formula	C (CH ₂ OH) ₄
Composition	approximately 90% pentaerythritol, and 10% dipentaerythritol
Appearance	white powder
Melting Range	185°-230°C.
Hydroxyl Content	47.5%
Combining Weight	35.8
Water	0.3%
Ash	0.04%
Specific Gravity	1.38 25°/4°C.
Bulk Density	0.7 (44 lbs./cu.ft.)

Solubility (g. per 100 g. solvent)

Water at 25°C.	13
Water at 100°C.	90
Ethanol at 25°C.	0.5
Benzene at 25°C.	insoluble
Acetone at 25°C.	insoluble
Oils at 25°C.	approx. 10
Glycerol at 100°C.	approx. 5
Pyridine at 100°C.	approx. 5

General

Non-hygroscopic; non-toxic;
all hydroxyl groups esterifiable

PENTEK is available in 80-lb. multiwall bags. Fully detailed illustrated booklet on Pentek will be mailed promptly upon request on company letterhead.

DIPENTEK®
(Dipentaerythritol, Tech.)

TRIPENTEK®
(Tripentaerythritol, Tech.)

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CHEMICAL CORPORATION



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393 SEVENTH AVENUE, NEW YORK 1, N. Y. • CHICAGO 6 • PHILADELPHIA 3 • SAN FRANCISCO 11 • RUMFORD 16, R. I.

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SPECIALIZED PETROLEUM PRODUCTS

If the petroleum base product you need is "slightly different," write your own specifications and Penn-Draze Specialized Service will follow them *exactly*.

This service can help you write specifications having the exact qualities to fill your needs. And Penn-Draze will follow through to see that you get materials that follow these specifications.



PENNSYLVANIA REFINING COMPANY

BUTLER, PENNSYLVANIA

Branches: Cleveland, Ohio and Edgewater, N. J.
Representatives in all Principal Cities

When inquiring check CP 2875 on handy form, pgs. 2-3

Now

METHOXY POLYETHYLENE GLYCOLS

as intermediates for —
mono fatty ester surface-active agents

as plasticizers for —
casein, dextrin, and zein compositions

These non-volatile liquids—with average molecular weights of 350, 550, and 750—can be supplied in commercial quantities. Samples on request. For more information, write for Form 6736.

CARBIDE and CARBON CHEMICALS CORPORATION

UNIT OF UNION CARBIDE AND CARBON CORPORATION
30 EAST 42nd STREET UCC NEW YORK 17, N.Y.

Offices in Principal Cities

When inquiring check CP 2876 on handy form, pgs. 2-3



MATERIALS

Gives 22 formulations of polyvinyl chloride

Twenty-two plasticized polyvinyl chloride formulations are set forth in 13-page bulletin. Illustrative of good commercial practice, these formulations are representative of those used for transparent films, for upholstery and drapery manufacture, for electrical parts, for floor tile, sink tops, etc., for cloth coatings, and for extruded parts.

Formulations range from those for high quality products to those for economical processing. Bulletin includes list of product suppliers, since many plasticizers and stabilizers recommended are produced by companies other than the manufacturer.

Tech. Bul. O-D-113, issued by Organic Chemicals Div., Monsanto Chemical Co., Dept. CP, St. Louis 4, Mo. When inquiring specify CP 2877 on handy form, pages 2 & 3.

Iron pentacarbonyl available in commercial lots . . .

yellow, chemically pure liquid is soluble in nickel tetracarbonyl, most organic solvents

Uses: As intermediate in organic syntheses.

Features: Working samples of pure $Fe(CO)_5$ are available for research. Also available in commercial quantities for the first time.

Description: Made by reaction of iron-containing ores with carbon monoxide, iron pentacarbonyl is yellow, chemically pure liquid. Has specific gravity of 1.466 at 18°C, and boiling point of 102.8°C at 749 mm.

Liquid is soluble in nickel tetracarbonyl and in most organic solvents. It is insoluble in water.

Carbonyl Iron Powders are produced from iron pentacarbonyl by heating until liquid decomposes into powdered iron and carbon monoxide. Iron particles thus formed are spheres absolutely free of non-ferrous materials.

Source: Supplied by Antara Products, General Aniline & Film Corp., Dept. CP, 444 Madison Ave., New York 22, N. Y. . . or for more information check CP 2878 on handy form, pages 2 and 3.

Corrosion-resistant coatings bond to all metals without surface roughening . . .

vinyl coating system protects metals from alcohols, acids, salts, petroleum products, etc.

Uses: To protect all metals from corrosives, especially metals directly immersed in corrosive.

Features: Primer coating adheres to metal by means of chemical action; bond is not dependent upon mechanical roughening of metal surfaces.

Bond strength is excellent even with such difficult metals as zinc, lead, cadmium, aluminum, nickel, copper, galvanized metals, magnesium, etc.

Coating is flexible over wide temperature range, has superior dielectric properties.

Description: Type 'WPS' Primer is applied to clean metal surfaces, where chemical interaction forms bond. Resin-impregnated pigments in primer develop tough, impermeable film which prevents underfilm corrosion. 'WPS' Tie Coat is applied to primer. Tie coat, specif-

Specify ALOX 937

in the preparation of
preservative lubricants
used in

Low Temperature Operations



• Alox 937 is used in various types of preservative lubricants and retains its excellent lubricating qualities at very low temperatures. Liquid at room temperature and soluble in naphthenic oils and oils used in the preparation of greases. It is recommended for use in preservative lubricants for use in firearms, instruments, ordnance equipment, woodworking tools and metalworking tools. It preserves iron and steel from corrosion and is effective even when applied in a thin, almost invisible "dry" coating.

Write for
Technical Literature

ALOX
CORPORATION
1927 BUFFALO AVENUE
NIAGARA FALLS, NEW YORK

When inquiring check CP 2879
on handy form, pgs. 2-3

MATERIALS

ically formulated to bond primer to top coat, has good chemical resistance in itself, and may be used as top coat to prevent atmospheric corrosion or to protect metals immersed in water or mild reagents.

Inert thermoplastic vinyl resins are blended with chemically resistant pigments and other inert ingredients to form the top-coat material. Top coat is unaffected by acids, alkalies, salts, petroleum products, alcohols and water.

Primer, tie coat and top coat have been formulated so that upon application each coating becomes an integral part of the others. Applied by spray, brush or dip methods, these coatings have greater coverage per gallon, heavier film per coat. Coatings air-dry in minutes by solvent evaporation.

Source: 'WPS' Coatings are available from Munray Products, Inc., Dept. CP, 12400 Crossburn Ave., Cleveland 11, O. . . or for more information check CP 2880 on handy form, pages 2 and 3.

Compression of floor insulation less than 1% at loading of 1000 lbs/sq ft . . .

glass fibers in asphalt-coated core arranged parallel to direction of applied force

Uses: Insulates floor of cold storage room. Designed for use under wearing slabs of such rooms.

Features: Compresses less than 1% under floor loadings up to 1000 lbs per sq ft; this compression is not progressive.

Description: Increased compression-resistance is achieved by arranging the component glass fibers of the insulation board so that they are parallel to action of load. Heavy asphalt coating, completely surrounding insulating core, prevents penetration of the hot asphalt employed during installation.

Fiberglas AE-F board has density of 6 lbs per cu ft, and is available in 2 and 3" thicknesses, 12" wide x 36" long. The 2" thickness has thermal conductance of 0.15 Btu/hr/sq ft/°F at mean temperature of 50°F. 3" thickness has conductance of 0.10 at same mean temperature.

Source: Product of Owens-Corning Fiberglas Corporation, Dept. CP, Toledo 1, Ohio . . . or for more information check CP 2881 on handy form, pages 2 and 3.

New material provides better vibration control.

Cork sheet, bonded on both sides to deep-grooved, oil-resistant synthetic rubber and used as highly effective noise and vibration control material, is pictured and described in 4-page, 2-color bulletin. Graphs compare resiliency, damping factor and sound insulation of new material with properties of natural cork, composition cork, composition plate, steel, concrete, brick, water, and pinewood.

Diagrams show typical mounting procedures, show that many machines need not be bolted to floor or to Elasto-Rib. Charts show deflection with varying loads; installation photos demonstrate typical applications.

Cat. ER-701, issued by The Korfund Co., Inc., Dept. CP, 48-15 32nd Pl., Long Island City 1, N. Y. When inquiring specify 2882 on handy form, pages 2 and 3.



PAPER MILL FELTS can be cleaned or conditioned faster with the aid of AEROSOL Wetting Agents, which speed up the penetration of cleaning solution or water into the felts, assuring more thorough saturation.

WATER SOLUBLE STAINS can be removed in dry cleaning without danger of leaving an undesirable odor when an AEROSOL Wetting Agent in a small quantity of water is used in place of the usual soap.

Where Speed means Economy or Increased Efficiency use AEROSOL* WETTING AGENTS

Speed is the keynote to economy and profits in many industries today. AEROSOL Wetting Agents meet the increasing demand for speed in a great variety of industrial applications in connection with water, oils and surface coatings—

- ... to increase spreading action
- ... to aid penetration
- ... to improve contact and thus aid adhesion
- ... to regulate characteristics of precipitates
- ... to increase the reaction rates between immiscible liquids

AEROSOL Wetting Agents have a great diversity of applications. A few of the fields in which they are being used are illustrated on this page. If you have processes in which thorough and rapid wetting is important, then one of these agents, designed to meet requirements under various industrial conditions, will apply.

Send today for a copy of our comprehensive booklet describing the characteristics and methods of application of the AEROSOL Wetting Agents.

*Reg. U. S. Pat. Off.



AN EXCELLENT GLASS CLEANING preparation can be made by dissolving an AEROSOL Wetting Agent in water or in water and a solvent. Such solutions have proved highly effective in cleaning telescopic mirrors prior to aluminizing.

AMERICAN Cyanamid COMPANY
INDUSTRIAL CHEMICALS DIVISION, DEPT. K9
30 Rockefeller Plaza, New York 20, N. Y.



When inquiring check CP 2883 on handy form, pgs. 2-3



Do You HAVE TROUBLES?

Do you have troubles—producing a uniform, high quality product month after month? Quality problems in many a process industry have been solved by replacing low purity, technical grade raw materials with **MALLINCKRODT FINE CHEMICALS**.

Mirrors, cosmetics and batteries—welding fluxes, synthetic rubber, and television tubes—pharmaceuticals, photographic emulsions, and fluorescent lamps—varnishes, dentures, and paper—photoengravings and electroplated metals—are but a few of the many things which have been made better and with less process trouble by starting with **MALLINCKRODT FINE CHEMICALS**.

And often, **COSTS GO DOWN** as the quality of the product goes up and losses from off-quality batches diminish. Why not investigate the possibilities of use in your processes?



Drop in at our Booth No. 86 at the National Chemical Exposition (Chicago Coliseum—October 12th through 16th) and talk over your production problems with our technical men. If you can't do this, drop us a line.

82 Years of Service to Chemical Users

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Uniform, Dependable Purity

When inquiring check CP 2884 on handy form, pgs. 2-3

MATERIALS

Coating creates 1", spongy protective mass when exposed to flame . . .

marshmallow-like foam retards charring, burning of wood for 15 to 20 minutes or longer

Uses: To protect wood and other materials of construction from damaging effects of flames.

Features: Swells to produce spongy mass, 1" to $1\frac{1}{2}$ " thick, when exposed to flames or extreme heat. This marshmallow-like substance retards charring and burning of wood for 15 to 20 min., thus allowing that much more time for firemen to get flames under control.

Description: New coating is supplied in form of powder to be mixed with water. When applied it resembles clear varnish. May be covered with conventional paint to provide color, if desired, without endangering fire-retardant qualities.

In laboratory test, a wooden panel coated with new product was subjected to flame of acetylene torch for 5 min. Original grain of wood was completely unharmed. Another test consisted of subjecting another panel to flames of a blowtorch for 25 min., without charring the wood in any manner.

Known temporarily as Coating X, new fire-retardant is available only for experimental purposes at present.

Source: Coating X is produced by The Sherwin-Williams Co., Dept. CP, 101 Prospect Ave., N.W., Cleveland, Ohio. . . or for more information check CP 2885 on handy form, pages 2 and 3.

Greases, oils, chemicals are not detrimental to coating resins . . .

tasteless, odorless and non-toxic polyethenes impart toughness, brilliance to paper

Uses: Now used for coating paper and paper products, these resins show promise for use in other industries. Coated papers can be used for packaging acid or corrosive materials, those containing animal fats and oils, or that must be protected from moisture, kept from drying out or maintained at high degree of chemical purity. They can be used in frozen food packages or for protection of electrical apparatus and other equipment against corrosion and fungi.

Some applications are in hot beverage and food containers; paper cups; butter, lard and cheese cartons; and containers for fertilizers and fertilizer ingredients, calcium chloride, solid caustic soda, sodium phosphates, magnesia, silica gel, synthetic detergents, resins, humus and Portland cement.

Features: Not affected by concentrated sulfuric, nitric, hydrochloric, hydrofluoric or acetic acid at room temperatures. Although slightly soluble in vegetable oils at 200°F or above, resins have excellent resistance to animal and vegetable oils at ordinary temperatures. They make paper resistant to water and water vapor, besides the other things mentioned above, and impart toughness and strength without imparting taste, toxicity or odor or making paper sticky.

Electrical insulating properties are reported as excellent at high and low temperatures. Resins give paper a brilliance approaching that of a lacquer finish. Flexible types retain flexibility at sub-zero temperatures.

Description: Alathon polythene resins are closely related to the plastic, polythene. Commercially produced

MATERIALS

in four types, A, B, C and D, they are white, waxy and translucent, and range from hard, brittle, wax-like materials to tough, flexible compositions. Molecular weights range from 18-19,000 for Alathon A to 8-9000 for Alathon D. All may be applied by commercial methods. Bags and packages can be made by heat-sealing papers coated with the resins.

Source: Products of E. I. du Pont de Nemours and Company (Inc.), Dept. CP, Wilmington 98, Del. . . or for more information check CP 2886 on handy form, pages 2 and 3.

Bonding of silicone rubber to certain other materials increases applications . . .

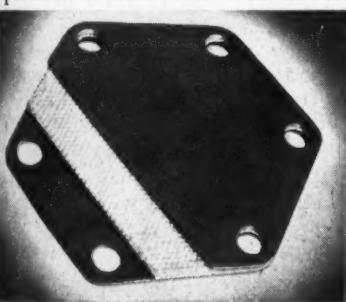
products with Fiberglas, asbestos, wool and cotton prove much stronger than the rubber alone

Uses: Materials are suitable for fabrication into molded and die-cut parts. High-pressure gaskets and diaphragms as well as electrical applications are numbered among the uses.

Features: By bonding the silicone rubber to other materials, its strength is increased. Because of this, range of application is broadened. Bonded materials will not turn

to carbon at respective maximum heats and will withstand permanent compression, prolonged weathering and hot lubricating oils.

Description: Bonds are made with Fiberglas, asbestos, wool and cotton. Fiberglas or asbestos



Shows bond of silicone rubber and asbestos

bonded parts are not affected by temperatures of minus 160°F to plus 400°F or higher. Wool bonded parts are suitable for applications involving constant temperatures to 300°F and intermittent temperatures to 400°F. Bonds with cotton withstand temperatures to 250°F.

Silicone rubber is used in handling hot or cold fluids and for other uses where extreme hot or cold conditions are prevalent. Parts do not crack, do not become hard or brittle, and do not deteriorate after long exposure to air, ultraviolet rays or ozone. Excellent dielectric properties.

Source: The Stalwart Rubber Company, Dept. CP, 221 Northfield Rd., Bedford, Ohio, is the maker . . . or for more information check CP 2887 on handy form, pages 2 and 3.

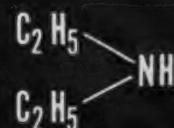
Lined pipe and fittings resist acids, alkalis, oxidants

Pipe and pipe fittings lined with rubber, lead, Saran and Heilex are pictured and described in 4-page, 2-color bulletin. Many photos show units in service, demonstrate range of pipe sizes produced and range of corrosion conditions that can be withstood.

"Heilex News", Vol. II, No. 1, issued by Heil Process Equipment Corp., Dept. CP, 12901 Elmwood Ave., Cleveland 11, O. When inquiring specify CP 2888 on handy form, pages 2 and 3.

DOUBLE CHECKED ✓ FROM RESEARCH TO INDUSTRY

SHARPLES DIETHYLAMINE



Diethylamine is one of the most versatile intermediates which are available in tank car quantities.

This amine reacts with a wide vari-

ety of chemicals, for example, aldehydes, ketones, oxides, phosgene, carbon bisulfide, chlorhydrins, cyanates and thiocyanates.

SUGGESTED USES

PETROLEUM

Solvent extraction; preparation of amides useful in refining of lubricating oils; complex salt with CuCl useful for recovery of diolefins; intermediate for preparation of gasoline stabilizer.

SOLVENT

Selective in petroleum and vegetable oil refining solvent for wide range of organic compounds.

RUBBER

Intermediate for synthesis of a number of ultra-accelerators of vulcanization and accelerator activators for natural and synthetic rubbers.

TEXTILES

Intermediate for synthesis of surface active agents, dyestuffs and sizing compounds.

PLASTICS

Condensation with other resin forming materials to give products useful for moldings, coatings, plasticizers and polishes.

PHARMACEUTICALS

Intermediate for synthesis of certain local anesthetics, antimalarials, antiseptics and other medicinal chemicals.

COSMETICS

Intermediate for synthesis of emulsifiers.

For prices, specifications and samples write to Dept. D

Sharples Chemicals Inc.

350 Fifth Avenue, New York 1, N. Y.

80 E. Jackson Blvd., Chicago 4, Ill.

123 S. Broad St., Phila. 9, Pa.



ETHYL, BUTYL AND ISOPROPYLAMINES
ALKYLOLAMINES • AMYL ALCOHOL
AMYL ACETATE • AMYL MERCAPTAN
UREA DERIVATIVES • RUBBER CHEMICALS
HYDROCARBONS
AMYL CHLORIDES • AMYL ETHER
DITHIOCARBAMIC ACID DERIVATIVES
CORROSION INHIBITORS



They Lead a TRIPLE Life!

Tanks and pipe for crude oil now last up to three times as long—when lined with coatings based on VINYLITE Brand Resins!

For these resins provide long-lasting protection against corrosion due to gas, iron, sulfite, salt water . . . they inhibit galvanic action . . . and they retard the accumulation of paraffin in oil field pipes and the formation of emulsion in salt water lines.

Application of VINYLITE Resin coatings, as carried out by Shamrock Reconditioners, for example, consists of sandblasting, removing dust, and spraying with four coats of the formulation.

Adding tremendously to the life of sucker rods, pipe connections, and structural and mechanical equipment in oil fields everywhere, VINYLITE Brand Resin coatings resist most alkalis and strong acids. They are resistant to thermal shock as well. And their film remains *intact* despite long service—maintaining integrity and bond. Not only is metal corrosion averted, but tremendous savings are effected in refinishing costs—at low first cost!

If you are a manufacturer desiring information on properties, uses, and formulations of VINYLITE Resins for surface coatings of various types, write Dept. GO-56.

Data courtesy Plastic Lining Corp., Chicago, and Shamrock Reconditioners, Wichita.



BAKELITE CORPORATION, Unit of Union Carbide and Carbon Corporation UCC 30 East 42nd Street, New York 17, N. Y.

When inquiring check CP 2890 on handy form, pgs. 2-3

MATERIALS

Impregnated fiberglass tape is excellent electrical insulator . . .

retains properties from -70°F to 500°F; forms homogeneous mass when cured

Uses: As outer wrappings for field coils, armature and transformer coils, insulation for solenoid coils, wires and cables, seals for hot air ducts, etc.

Features: Tape vulcanizes to form moisture-proof and oil-resistant homogeneous jacket. Elasticity is retained over wide range of temperatures, an invaluable characteristic in applications where severe vibration occurs.

When tape is applied and heated for vulcanizing, solid mass of insulation is formed, free of air spaces.

Description: Insulating tape consists of fiberglass cloth impregnated and coated on both sides with Silastic rubber, a rubberlike dielectric which retains physical, chemical and dielectric properties under temperatures from -70°F to 500°F.

Rubber on one side is completely cured, on the other it is semi-cured. Thus when tape is applied and vulcanized, insulation is homogeneous mass.

Properties which are important to facilitate use under all conditions include ease of handling and curing, chemical resistance, high thermal conductivity. Has dielectric strength of 450 volts per mil (1/4" electrodes). Has uncured tensile strength of 60 lbs. per 1" width. Material remains soft and rubberlike at elevated temperatures.

Tape vulcanizes in 15 min at 260°F. Silastic-taped section can be placed in air-circulating oven operating between 260°F and 300°F, actual oven time depending upon mass of unit and thickness of taped section.

Tape may also be vulcanized in steam autoclave, vulcanization being completed in 3 to 5 min at 50 psi. Prolonged exposure to steam is not required and not recommended. After vulcanization, recommendations include after-cure in air-circulating oven at 400°F, at periods to 4 hours depending on thickness of mass.

Tape is available in 2 thicknesses: R-12 (0.012" plus or minus .002") and R-20 (0.020" plus or minus .002"). Supplied in widths of 1/2", 3/4", 1", 1 1/2" and 2". Other widths to 36" available when specified. R-12 is furnished in 72' rolls, R-20 in 48' rolls.

Source: Produced by Irvington Varnish & Insulator Co., Dept. CP, Irvington 11, N. J. . . or for more information check CP 2891 on handy form, pages 2 and 3.

Reports properties, reactions of dicyanoguanidine

Potassium dicyanoguanidine is described in 12-page bulletin. Physical properties are outlined at length, with comments on stability of various salts and solutions. Infrared and ultra-violet spectra are provided.

Typical reactions are shown in reaction chart. Section on chemical properties covers formation of acid from potassium salt, formation of various salts, reactions with amines and acids, etc.

Notes on toxicity tests are provided. Bibliography tells of previous literature on the dicyanoguanidines. New Product Bulletin 6, issued by American Cyanamid Co., Dept. CP, 30 Rockefeller Plaza, New York 20, N. Y. When inquiring specify 2892 on handy form, pages 2 and 3.

MATERIALS

Phenolic molders boost production 25 per cent . . .

fast-curing powder has specific gravity of 1.37

Uses: Molding of wiring-device parts; also for general molding.

Features: Shorter curing times have permitted molders to increase production 25%. 1.37 specific gravity enables users to produce more parts per pound than with higher-gravity fast-curing materials.

Description: Line of phenolic molding powders is available in special granulations for high-speed automatic molding and in stock grades for conventional operations. With the exception of the specific gravity, other physical and electrical properties are said to be equal to those of typical general-purpose compounds.

Source: Made by General Electric Company, Chemical Dept., Dept. CP, Pittsfield, Mass. . . or for more information check CP 2893 on handy form, pages 2 and 3.

Odor of detergents almost nil . . .

aromatic non-ionics are stable in acids, alkalis, electrolytes

Uses: Employed in variety of detergent applications.

Features: Practically odorless, and extremely stable in presence of acids, alkalis and electrolytes. Since they do not ionize, they will not form insoluble compounds in hard water. Not easily decomposed or separated.

Description: Both compounds are of the aromatic polyethylene glycol ether type. Antaroxy A-400 and A-480 retain their physical and chemical properties throughout long storage periods. They withstand wide variations in temperature.

Maker points out that these nonionic synthetic detergents are foamers, and therefore make possible formulation of products with consumer appeal.

Source: Developed by Antara Products, General Aniline & Film Corp., Dept. CP, 444 Madison Ave., New York 22, N. Y. . . or for more information check CP 2894 on handy form, pages 2 and 3.

For more information on product advertised at right, specify CP 2895 . . . see information request blank between pages 2-3.

if you use phenolics . . .

cut resin costs 15-20%

"Vinsol" Resin Emulsions and Solutions



HERCULES POWDER COMPANY 140 Market Street, Wilmington 99, Delaware

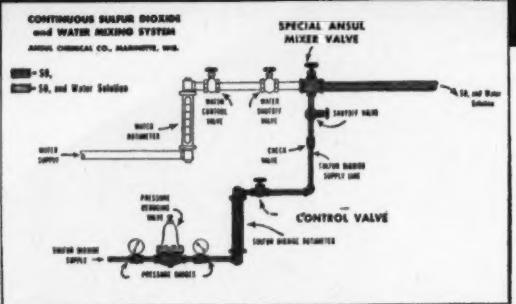
One of the lowest priced, most plentiful dark resins obtainable today, "Vinsol" is saving money for many manufacturers—as a modifier, extender, or partial replacement for phenolics. A 15-20% reduction in total resin costs is common—with no appreciable sacrifice in physical or chemical properties. "Vinsol" is available as a solid resin and in emulsion or solution form for use with water-soluble or spirit-soluble phenolics. We welcome the opportunity to work with you on possible applications. Write for technical details, samples, prices.

BETTER QUALITY CONTROL IMPROVED PROCESS EFFICIENCY IN one OPERATION

✓ ACIDIFY . . . ✓ NEUTRALIZE
✓ BLEACH . . . ✓ PRESERVE
✓ DECHLORINATE . . . ✓ REDUCE
✓ DEOXIDIZE . . .

WITH AN **ANSUL**
CONSTANT SO₂ CONCENTRATION
SYSTEM

- Finger-tip controlled
- Easy and inexpensive to install
- Safer to handle and operate



ANSUL SO₂ is a volatile, easy to control, multi-purpose acid. It permits the user to . . . 1) combine a number of individual process steps into one simple operation . . . 2) easily remove many product impurities sometimes difficult to eliminate . . . resulting in improved process efficiency and better quality control of the finished product.



Write for more information and if possible, include a description of the application in your plant. Our Technical Staff will help you take full advantage of the benefits outlined above. In addition to our Bulletin describing the Ansul Constant SO₂ Concentration System, we will send you an informative treatise describing the properties, characteristics and industrial uses of Liquid Sulfur Dioxide. . . . An Ansul Technical Staff Publication.

For your METHYL CHLORIDE applications
Use ANSUL METHYL CHLORIDE



ANSUL CHEMICAL COMPANY
INDUSTRIAL CHEMICALS DIVISION MARINETTE, WISCONSIN
60 E. 42nd St., New York — 515 Chestnut St., Philadelphia

When inquiring check CP 2896 on handy form, pgs. 2-3

MATERIALS

Repairs, resurfaces wood, steel, concrete, brick, stone

Profusely illustrated folder shows many uses of floor-resurfacing compound. Four pages contain photos of resurfaced floors in airplane factories, steel plants, radio plants, warehouses, etc. Brochure pictures private concrete street in soap manufacturing plant which is resurfaced with product, identified as Ruggedwear.

Cut-away diagrams illustrate methods of patching holes, overlaying floors, covering wood, concrete, stone, brick, and steel. States that material may be applied over any old floor, without chipping, after simple priming.

"Ruggedwear", issued by Flexrock Co., Dept. CP, 3611 Filbert St., Philadelphia 4, Pa. When inquiring specify CP 2897 on handy form, pages 2 and 3.

Uses for organic acids Ile in many fields

caprylic and capric acid employed in surface-active agents, fungicides, plasticizers, cosmetics, others

Uses: These compounds or their derivatives are used as bactericidal and fungicidal agents in pharmaceuticals, for compounding of soap-base shampoos, as chemical intermediates in production of flavors, perfumes, surface-active agents, plasticizers and alcohols. Also for production of fungicides and other toxic materials, mineral flotation, making of plasticizers and detergents.

Description: Caprylic and capric acid have the following typical analyses:

	Caprylic Acid	Capric Acid
Acid Number	383	315
Saponification Number	386	316
Melting Point, °C	11.1	28.0
Iodine Number	Less Than One	
Moisture, %	1.6	0.5
Fatty Acid Composition, %		
Caproic	5.4	
Caprylic	91.7	1.7
Capric	2.9	93.2
Lauric		4.8

An ointment containing 9% sodium caprylate and 1% free caprylic acid has been effective in treating ringworm of the foot. 1-2% of these compounds in soap-base shampoos eliminates danger of free alkali without affecting free-rinsing characteristics. Copper and zinc caprylates are used in fungicides and other toxic materials. Emulsion containing 1% caprylic or capric acid has been used to good effect on aphids.

Neutral esters of caprylic and capric acids with diethylene, triethylene and propylene glycols are suitable plasticizers for ethyl and nitrocelluloses, polyvinyl acetal and other vinyl plastics. Detergents and other surface-active agents are compounded using triethylolamine caprylate and non-ionic wetting agent of the mono-ester type.

Source: Acids are made by El Dorado Oil Works, Dept. CP, 311 California St., San Francisco 4, Calif. . . . or for more information check CP 2898 on handy form, pages 2 and 3.

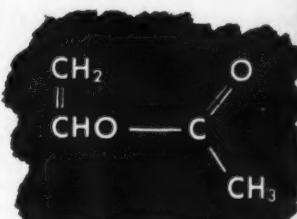
Non-woven, non-impregnated cotton felt is lint-free, strong, flexible . . .

made entirely of cotton, the felt opens new fields in plastic fabrication, leather manufacture, etc.

Uses: Can be impregnated and surface-coated to

NIACET
Trade Mark

UNPOLYMERIZED VINYL ACETATE (STABILIZED)



BOILING RANGE
71.8° to 73°C.

Vinyl Acetate can be polymerized to form resins with exceptional bonding qualities for wood, glass, metal and fibre.

Vinyl Acetate can be used for synthesis of a-b-dichloroethyl acetate, b-monochloroethyl acetate, b-chloro acetals, 2-aminothiazole, chloroacetaldehyde and many others.

Containers:

410 lb. drums

62,500 lb. tank cars

For further information write to:



Sales Offices:

926 Niagara Bldg. • Niagara Falls, N.Y.

When inquiring check CP 2899 on handy form, pgs. 2-3

MATERIALS

form artificial leather with properties strikingly like those of natural leather.

Promises to be ideal surgical felt. Conformability to any surface suggests uses as plastic filler. Preliminary tests indicate that non-woven cotton felt is effective filter medium.

Felt has been used successfully as electrolyte carrier in reducing size of dry cells for hearing aids.

Features: Felt contains no animal fibers, is not woven, and contains no binder. Entangling process produces strong, lint-free, soft, flexible and conformable fabric.

Description: Long cotton fibers are felted by patented entangling process. Felt simulates to surprising degree the fiber structure found in wool and natural leather.

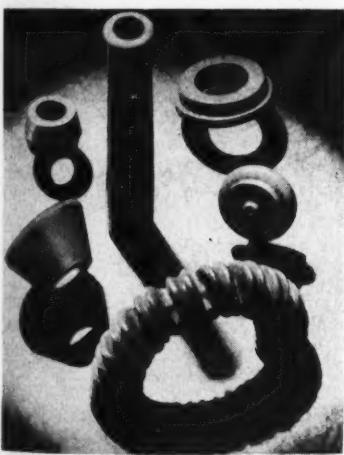
Artificial leather formed from basic fiber structure has suede-like surface, clean raw edges where cut, thus permitting fabrication by methods used with real leather.

Known as Webril Non-woven Fabric Type R, the felt is available in non-impregnated form for further processing.

Source: Developed and produced by Kendall Mills, Dept. CP, Walpole, Mass. . . or for more information check CP 2900 on handy form, pages 2 and 3.

High tensile and good elongation combine in silicone rubber . . .

parts fabricated from improved product recommended for minus 100 to plus 500° service



Some parts made with silicone rubber

Uses: Molded, extruded, punched and lathe-cut rubber parts are suitable for applications involving temperatures below minus 100°F and ranging up to temperatures above 500°F. These parts are resistant to ozone, tricresyl phosphate and the chlorinated hydrocarbons used in liquid-cooled transformers.

Features: Tensile strength, elongation, tear-resistance and dielectric properties are reported to be markedly improved over those of earlier silicone rubber stocks. Mathematical product of tensile strength times elongation has been increased to 6 times, and tear-resistance is at least 3 times that of the best values measured on previous stocks, maker states.

Description: Silicone No. 250 can be fabricated into washers, gaskets, sleeves and tubing, as well as a wide range of molded shapes. It is orange-tan in color.

Source: The Stalwart Rubber Company, Dept. CP, 340 Northfield Rd., Bedford, Ohio, is the maker..... or for more information check CP 2901 on handy form, pages 2 and 3.

Here's why you should look into

DU PONT "ELVANOL"

POLYVINYL
ALCOHOL

Flexible, High-Strength Water-Soluble Resin

WATER SOLUBLE—dissolves easily in hot or cold water, depending on the type and grade. No need for expensive organic solvents.

HIGH STRENGTH AND FLEXIBILITY—characteristics not often found in a water-soluble resin. Tensile strength and flexibility can be varied with plasticizers.

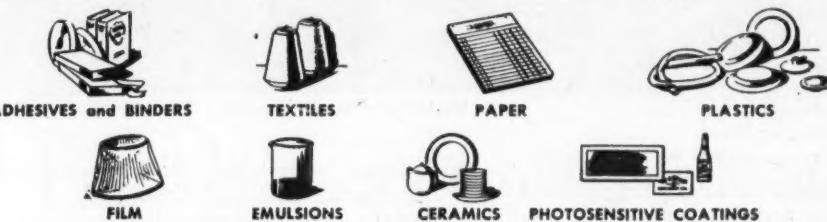
RESISTANCE TO GREASES AND COMMON ORGANIC SOLVENTS—impervious to air and many

other gases—useful characteristics for many applications.

SEVERAL GRADES OF "ELVANOL" are available, each with different physical properties, permitting a selection of the grade best suited to specific requirements.

MODIFICATIONS of its properties are possible with plasticizers, extenders, gelling agents, colors, flame-retardants, etc.

Here are a few of the industrial applications



Here's how to get the whole story

SEND FOR THIS 44-PAGE BOOK. IT TELLS YOU:

WHAT "Elvanol" is—physical and chemical properties, etc.

WHERE "Elvanol" may be used—industrial uses and applications.

HOW "Elvanol" can be modified for a particular application.

WHICH "Elvanol" grades are available for general or special uses.

For your FREE COPY, just write to: Electrochemicals Department, E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Delaware.



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Please send me book with full information on Du Pont "Elvanol" polyvinyl alcohols.

Name _____

Position _____

Firm _____

Address _____

CPR

When inquiring check CP 2902 on handy form, pgs. 2-3

Mechanical Fingers Place Glue Dots on Cases; Simplify Unitizing Pallet Loads

Method provides rigidity without excessive use of glue; avoids carton damage in breaking up loads

PROBLEM: Large brewery used fiber cases for beer and planned to improve method of shipping in unitized loads by gluing cartons together so they could be transported on lightweight disposable pallets.

While glue offered a logical means of unitizing the loads, the labor involved in manual applications would defeat the economies anticipated. Experience of others had shown that in applying glue by mechanical means it would be desirable to have package stationary, rather than in motion. Rapid, trouble-free performance would depend largely in avoiding build-up of glue on revolving parts, tearing of cartons when unitized loads were broken up on arrival at destination.

Solution: Plant installed a recently designed machine, which applies a quick drying adhesive. The machine is placed at the very end of the conveyor line. Dots of glue, instead of the usual strips, are printed on the bottoms of the cartons. The amount deposited in each case is entirely adequate to provide rigidity without resulting excessive carton damage in breaking down the load. The cases are stopped while glue is applied. The printing bars are flat, with spring steel fingers serving as printing members. These bars which are totally submerged, except when actuated, swing out of the glue to contact the boxes and print all the dots simultaneously. The fingers are removable and since many gluing patterns require glue dots only at each end of the package the center fingers can be eliminated.

Operation of machine is by a foot or knee switch which activates a continuous duty solenoid controlling a single clutch driven by a $\frac{1}{4}$ hp motor through double reduction worm gears. A bell crank pushes the pusher arm, which in turn swings the printing bars out of the glue pans. Adjustments are provided for length and height of the throw of the printing bars.

Glue pans and guide rails are adjustable laterally to accommodate boxes from 5" wide to 20" wide. Pans and printing mechanisms can be interchanged from left to right and the machine will operate with either one or two printing units. Boxes up to 29" long can be accommodated.

Because fast drying glues are used, the entire assembly is made so that residual glue can be emptied and all parts dumped in a wash in a matter of seconds.



Machine applies glue to cartons for assembly in unitized pallet loads

Machine frame is of tubular construction and is adjustable for height at either end. Printing bars are nickel cadmium plated and automatically sag to adjust in bottom of carton. Glue pans are nickel cadmium or chromium plated. Current requirements: 110 volt AC lighting circuit.

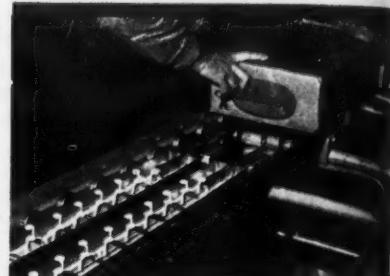
Any liquid adhesive can be used, even glues which set in one minute.

Results: Cases quickly unitized for handling and shipment on paper pallets. Labor and operating costs are low. Strapping of any kind is rarely required. (Where rough handling is anticipated a single strap of

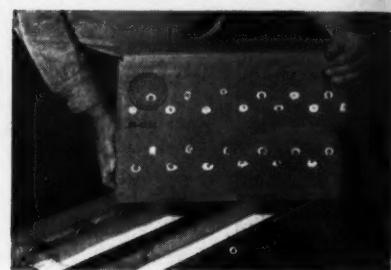
metal or other material placed horizontally around the top layer helps to stabilize it.) Cases are quickly glued for assembly in unitized loads on paper pallets. These hold securely throughout all handling and upon arrival are easily broken up without damage to the cases.

Quick cleaning feature of the machine makes it possible to keep it in perfect working order at all times.

Source: Glucon units are available from Handling Devices, Inc., Dept. CP, 581 Boylston St., Boston, Mass. . . or for more information check CP 2903 on handy form, pages 2 and 3.



Case about to pass over gluer; steel fingers apply dots of glue in preset quantity



As fingers are removable, quantity and spacing of dots is optional according to pallet pattern

Pick Up and Move 12 Gas Cylinders at Once with Truck's Special Carrier

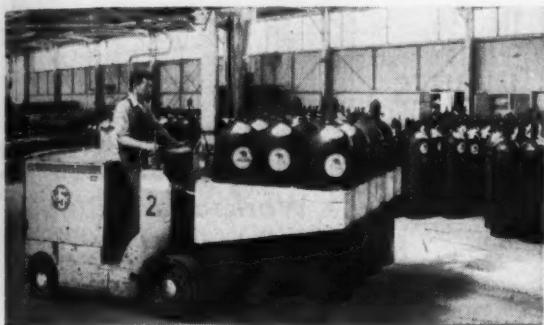
Operation is part of mid-west chemical plant's new mechanized system that replaces slow, costly manual methods

PROBLEM: Michigan chemical company has packaged products in bags, cartons and cylinders for delivery to customers. As operations were continually stepped up, production, storage and shipping space were

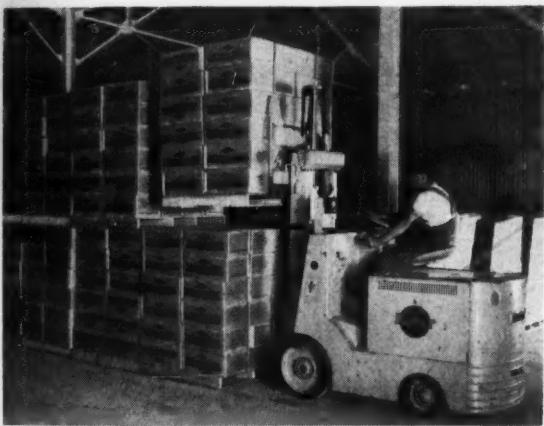
taxed to the limit. Also it became extremely difficult to maintain schedules and keep flow of raw materials and finished products moving smoothly. These difficulties were due largely to manual methods

of material handling: moving and stacking bagged and cartoned products by hand, and rolling cylinders one at a time.

Solution: A fleet of five heavy-duty electric forklift trucks was put into service. Two of these are of somewhat heavier construction than the other three. This gives the necessary capacity to move twelve 16" gas cylinders in a single load by means of a Traynor-Reinhart carrier (see illustration), fitted to one of these trucks.



Hydraulic attachment permits one man to move 12 cylinders at a time



Truck tiers 4000 lb. pallet loads of finished chemical products, utilizing overhead space

Truck is easily moved up to cylinders, already properly grouped in lots of twelve. Carrier is lowered, and load is lifted and held securely as truck moves to its destination. Cylinders are easily spotted at any point or loaded snugly into boxcar or trailers.

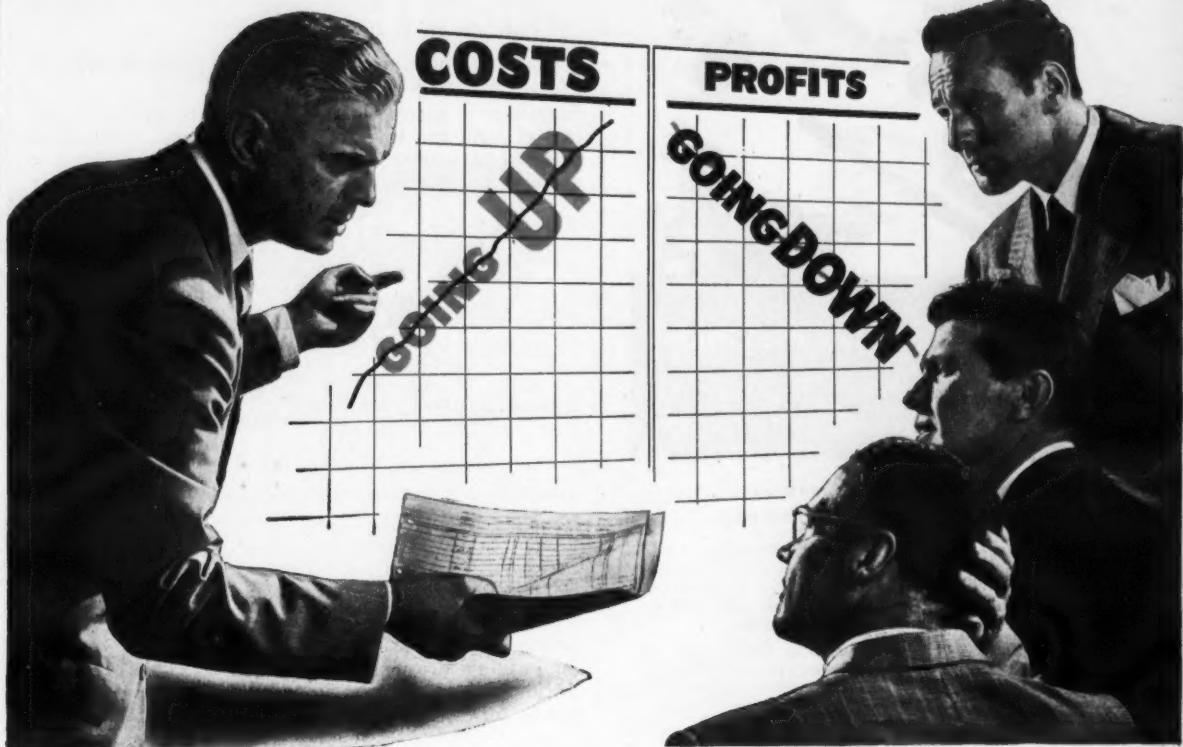
Other materials and products are handled by the remaining three trucks. All trucks are equipped with full contactor control, automatic acceleration, and telescoping lift which permits hoisting palletized loads to a height of 10 feet. Smooth lifting of the fork carriage and tilting of the upright channel guides is accomplished with hydraulic jacks.

Results: Thousands of dollars are saved annually over former methods. Handling time in moving, storing, tiering and loading for shipment is cut to a minimum.

Laborious manual methods are eliminated. Storage space is conserved by palletizing products packed in bags and cartons. Palletized loads also are shipped more efficiently and safely.

Source: FBH type trucks are built by Baker Industrial Truck Div. of Baker-Raulang Co., Dept. CP, 2168 W. 25th St., Cleveland 13, Ohio . . . or for more information check CP 2904 on handy form, pages 2 and 3.

"There Must be Something Wrong Here, Boys"



And There Is if someone hasn't found the way to CUT HANDLING COSTS IN HALF !

Did it ever occur to you, with prices under pressure, sales declining, profits being squeezed, that your order to "Lay low on capital expenditures" actually has helped sky-rocket your costs?

Do you know that many large concerns have hit on almost a magic formula that gives quick relief from the headaches of rising costs? They found a way to CUT HANDLING COSTS IN HALF. That way, is the Automatic Electric Truck way.

These amazing electric trucks lift, move and stack your material ceiling-high with easy, finger-tip operation . . . hundreds of pounds, or tons. One operator handles more material than three workers could by antiquated manual handling methods, releasing two men for more productive work.

So, when your cost figures call for a showdown, instead of saying: "There must be something wrong here, boys", consider how much Automatic's 50% saving in handling costs could change your top-heavy costs picture.

And has it ever occurred to you, that your competitor can undersell you because he enjoys a large saving using Automatic Electric Trucks? Saleswise, for every \$5,000.00 saved in cutting handling costs, you earn the equivalent of a 5% profit on \$100,000.00 worth of sales!

Mail the coupon for all the facts . . . and then you'll see why Automatic equipment is not a capital expenditure, but a money-making, cost-cutting bonus, every time you handle material!



Trade **Automatic** Mark
41 W. 87th St., Dept. P-9, Chicago 20, Illinois
Please send me complete money-saving facts on amazing
Automatic Electric Trucks without obligation.

Company name.....

By..... Position.....

Street Address.....

City..... Zone..... State.....

When inquiring check CP 2905 on handy form, pgs. 2-3

Every part corrosion-resistant to save you money! This fully-exploded view shows how the Ampco Pump is designed and constructed. All sizes are available in pedestal or close-coupled types.



Ampco Pumps give maximum efficiency plus 5 extra features . . . at no extra cost!

Ampco Pumps resist corrosion, erosion, and cavitation without loss of efficiency.

Ampco Pumps are designed for high efficiency — and maintain it because they are made of correctly mated Ampco alloys. These alloys hold wear to an absolute minimum; they have a natural resistance to the destructive action of corrosion, erosion, and cavitation.

Here are five "plus" features usually found only in special pumps. They add \$50.00 or more to the price you pay (when you can get them) — and lengthen delivery by weeks. Yet you get them in the rugged Ampco Pump — all for a standard pump price.

1. Corrosion-resistant impeller and casing — made of Ampco (aluminum bronze) alloy with an average tensile strength of 75,000 p.s.i., Brinell 125 (3000 kg.).

2. Corrosion-resistant shaft — made of Ampco (aluminum bronze) alloy with a fatigue life of 100,000,000 cycles at 37,000 p.s.i., yield 65,000 p.s.i., elongation 17% in 2".



Special Pumps — twin Ampco centrifugal pumps powered by a gasoline engine — for oil-field service.

FREE

Bulletin on Ampco Centrifugal Pumps. Tear out this coupon and mail today.



Milwaukee 4, Wisconsin

West of the Rockies, it's the Ampco West Coast Plant, Burbank, Calif.

Ampco Metal, Inc.

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Send me Bulletin 85 on Ampco Centrifugal Pumps

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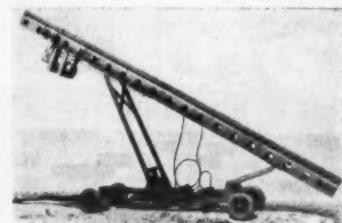
MATERIAL HANDLING

Hydraulic control of belt-speed and frame-height multiplies conveyor applications . . .

mobile unit, in various lengths, moves packaged or bulk materials at 0 to 400 fpm

Uses: Mobile belt conveyor for moving packaged or bulk materials.

Features: Increased versatility due to hydraulic control of both the belt and Duo-Lift frame. Action of belt can be reversed, and belt speeds range from 0 to 400 fpm, permitting use with wide range of materials. Frame adjusts to many positions.



Hydraulically-controlled "Tote-All" depending on the length of the conveyor.

Mounted on 4 wheels with 4.00 x 8 pneumatic tires. Easily pulled by hand or vehicle by means of handy tow bar. Furnished in lengths of 10' and up, in multiples of 2', and with belt widths of 8, 10 and 16". Also special lengths and widths made to specification.

Source: Tote-All belt conveyor is made by Lake Shore Engineering Company, Dept. CP, Iron Mountain, Mich. . . or for more information check CP 2907 on handy form, pages 2 and 3.

3-prong fork truck accessory stacks heavy steel drums . . .

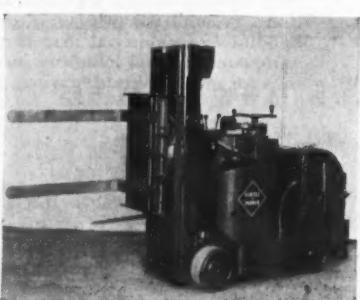
rotating head on lift mechanism reverses loads from horizontal to vertical, or vice versa

Uses: Three-prong fork accessory for upending and transporting heavily-loaded steel barrels by power truck. Also for similar objects whose position is to be reversed from horizontal to vertical, or vice versa.

For stacking loads, vertically or horizontally, up to a fork-height of 112".

Features: Fast, economical handling of large output when used with rotating head on truck's lifting mechanism.

Description: Single fork is 18" long; double fork is 42" long. They are chisel-pointed. Detachable single fork can be inserted at either side of fork supporting plate. Double fork adjusts out to 42" outside spread of tines.



3-prong, 2-way fork attachment

When barrel stands upright, the short single fork is pushed beneath it. Truck's upright column is tilted slightly backward, and rotating head inclines barrel against long, double fork, in which position it is transported. When barrel

LIFT 3000

POUNDS

10 FEET

IN 1½

MINUTES



with a Yale Worksaver tilting fork electric truck

• Smooth hydraulic telescopic lift does the job. Truck picks up giant loads . . . tilts them backward 21° for maximum load stability in travel.

• Saves time and money — reduces handling to a mere "stroll-and-steer" operation.

• Capacities: 2,000 lbs. up to 3,000 lbs.

Write for literature.



THE YALE & TOWNE MANUFACTURING CO.

Roosevelt Boulevard • Philadelphia 15, Pa.

HAND LIFT AND POWER TRUCKS • HAND AND ELECTRIC HOISTS • INDUSTRIAL DIAL SCALE

When inquiring check CP 2908 on handy form, pgs. 2-3

Modernize! INSTALL Screw-Lift

Patented and Trade Mark Reg. U. S. Pat. Off.

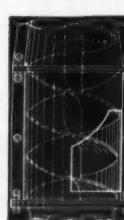
Handle your bulk material the most efficient way — elevate it with a HAMMOND SCREW-LIFT . . . revolutionary . . . simple . . . fool-proof . . . non-clogging . . . non-choking.

A patented piece of equipment that elevates, distributes, reclaims, reloads . . . or it will take your material from processing machines and lift it to hoppers for packaging. Totally enclosed — sanitary — accessible — noiseless. 6 types, from capacities of 75, 300, 1000 or 2500 cu. ft. per hour.

Write for Form No. M-500-2.

← You Can't Choke a Screw Lift

Patented 1/4 segment scientifically shaped loading opening permits exact loading, but no overloading.



Over 1,000 in
successful op-
eration.

Screw Conveyor Corporation
699 HOFFMAN ST. HAMMOND, IND.
ENGINEERS MANUFACTURERS
TRADE MARK REG. U. S. PAT. OFFICE
PRODUCTS
PATENTED

When inquiring check CP 2909 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

When inquiring check CP 2906 on handy form, pgs. 2-3

MATERIAL HANDLING

thus carried is to be put down horizontally, rotating head revolves the double fork, with its load, to lower horizontal position and tines are withdrawn.

Entirely controlled by driver, the operation is reversed when position of load is to be changed from horizontal to vertical. Truck is equipped with either gas-electric or all-electric power unit. Load capacity, 3000 lbs.

Source: The Elwell-Parker Electric Company, Dept. CP, Cleveland, O. . . . or for more information check CP 2910 on handy form, pages 2 and 3.

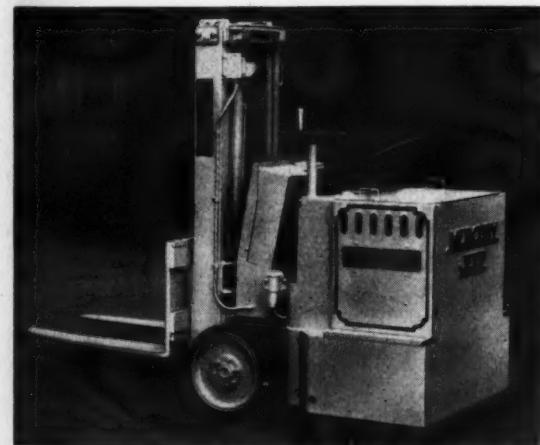
Suspension system of lift truck automatically compensates for off-center loads . . .

telescoping and non-telescoping models carry 1 ton, have only 33" wheelbase

Uses: Picks-up, moves, tiers, loads and unloads pallet and other unit loads of boxes, cases, and various materials such as metal parts, coiled strip, etc.

Features: This redesigned model retains features of standard unit, but has a reduced wheelbase of 33". Features common to both units include hydraulic hoist and tilt, mechanical-contactor travel control, all-welded frame, single-unit, double-reduction drive axle, shockless wheel steering.

Description: Capacity — 2000 lbs. Power source: 15 cells of 15-plate lead-acid battery or 24 cells of C-7 Edison battery. Travel speed with full load is up to 5 mph.



Truck's overall length is only 103" when carrying 48" pallet load

Hoist system incorporates special load suspension that automatically compensates for off-center loads and eliminates thrust on cylinders and ram. Two-handle control. One for tilt direction; one for hoist or lowering.

Tilt mechanism embodies a single pivot-mounted, double-acting hydraulic cylinder and ram assembly. Pressure is supplied from hoist pump motor unit.

Contributing to safety is a foot pedal-applied travel brake. Brakes are applied when operator leaves seat. They are electrically interlocked with controller.

Source: Tilting telescopic and non-telescopic 33" wheelbase "Jeep" trucks (No. A-1364-203) are built by Mercury Mfg. Co., Dept. CP, 4044 South Halsted St., Chicago 9, Ill. . . . or for more information check CP 2911 on handy form, pages 2 and 3.

"RIDDING ON AIR"



The economical transportation of bulk powders and the collection of harmful or valuable dusts, are just a few of hundreds of jobs performed by KIRK & BLUM equipment in leading chemical and process industries plants.

Through this system, illustrated above, powdered drugs are conveyed 500 feet. Even longer distances may be served.

Backed by more than 40 years of experience, KIRK & BLUM is equipped to design, fabricate and install specialized equipment to eliminate your particular problem. To architects, contractors, plant engineers and owners, KIRK & BLUM service means undivided responsibility . . . one contract for the system, installed, ready and guaranteed to operate. The KIRK & BLUM MFG. CO., 2833 Spring Grove Ave., Cincinnati 25, Ohio.



Send for these booklets: "Fan Systems for Various Industries",
"Industrial Ovens".

FOR CLEAN AIR...THE [REDACTED] TOOL

KIRK AND BLUM

AIR HANDLING SYSTEMS — DUST & FUME CONTROL

When inquiring check CP 2912 on handy form, pgs. 2-3

For the same noted pharmaceutical manufacturer, KIRK & BLUM designed and installed this system which delivers finely ground materials to mixing drums. Up to 3000 lbs. of powder is handled per hour without loss to outside atmosphere.

The "MASTER" Line OF MATERIALS HANDLING EQUIPMENT "Engineered to Save You Money"

Volume Off? Costs up? Competition Swift? What to do? . . . Lick them with the "Master" Line! Multiply your manpower, storage space, floor space! Speed up receiving, production, storing and shipping!



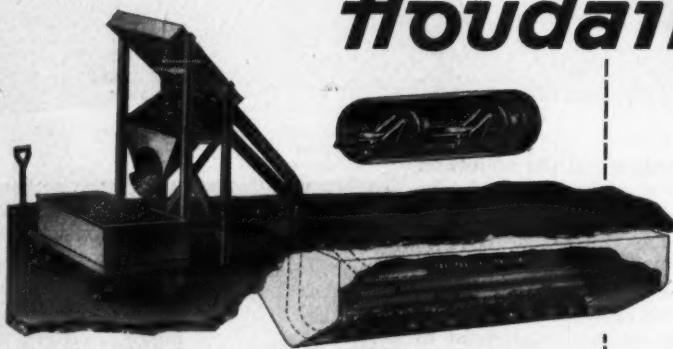
LEWIS-SHEPARD PRODUCTS INC.

146 Walnut St., Watertown 72, Mass.

Midwest Plant: Crawfordsville, Ind.
Representatives in Principal Cities.

When inquiring check CP 2913 on handy form, pgs. 2-3

Houdaille* CONVEYOR will work for you



Licensed under Neuman's Patents
Nos. 2,147,195 and 2,432,756.

HERE ARE A FEW OF THE SUGGESTED USES FOR THE HOUDAILLE CONVEYOR

METAL WORKING INDUSTRY

Cast Iron Dust and Chips
Aluminum Dust and Chips
Abrasive Sludge
Scale resulting from quenching,
metal cleaning, steel rolling,
aluminum rolling, brass rolling,
copper rolling, wire drawing

MATERIAL FROM DUST COLLECTORS

PLASTIC POWDERS

BREWERY PRODUCTS
Grain, spent or new

FOOD PROCESSING

PACKING PLANTS
Cracklings, other by-products

SOAP MANUFACTURING

Powders, chips, etc.

MANY OTHERS

When inquiring check CP 2915 on handy form, pgs. 2-3

IRONBOUND SKIDS



...Still the low cost time proven method for efficient and economical handling of materials.

Illustrated literature will show you how most items can be handled with standard units.

IRONBOUND
BOX & LUMBER COMPANY
Materials Handling Division
63 HOFFMAN PLACE • HILLSIDE, N. J.



SKIDS • SEMI-LIVE SKIDS
DOLLIES • FLOOR TRUCKS

When inquiring check CP 2914 on handy form, pgs. 2-3

MATERIAL HANDLING

Move barrels and drums
up to 1000 lbs with
1-man truck . . .

10" wheels have molded-on rubber tires; units have adjustable chime hooks

Uses: For handling wood barrels or steel drums weighing up to 1000 lbs.

Features: Chime hook is adjustable to permit handling any height drum or barrel.

Description: Unit is double center-column type with handlebar hand grips. The handle is covered with safety rubber to provide a safe, comfortable grip.

Frame is heavy structural angles; center posts and handles are 1-5/16" steel tubing.

Source: No. 60 Barrel truck is built by Buffalo Caster & Wheel Corp., Dept. CP, 158 Breckenridge St., Buffalo, N. Y. . . or for more information check CP 2916 on handy form, pages 2 and 3.



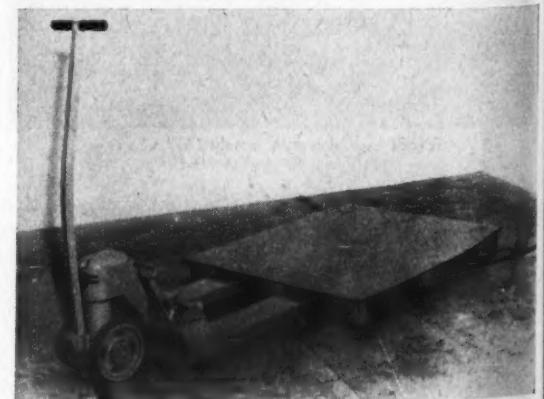
Truck handles drums of any height & Wheel Corp., Dept. CP, 158 Breckenridge St., Buffalo, N. Y. . . or for more information check CP 2916 on handy form, pages 2 and 3.

Pick up paper or wood pallets with truck 22" wide . . .

maker's standard truck redesigned to handle 4-way corrugated paper pallets with supporting columns

Uses: For handling expendable 4-way corrugated paper pallets having cylindrical supporting columns; also wooden pallets.

Features: Redesigned lightweight pallet truck has forks which are only 6" wide and allow a 10" opening between the forks, making it possible to provide an overall width of only 22".



Paper pallet truck has overall width of 22"

Additional features include rubber tired front wheels, handle holdup, and improved foot pump with pedal release.

Description: Capacity of truck is 2000 lbs. Lowered height is 3 1/4"; elevated height 7 1/4". Because of the unique design and the standard booster rolls in the fork

CHEMICAL PROCESSING Preview

MATERIAL HANDLING

ends, this truck will also handle the standard double faced wooden pallet. A friction brake engages the floor when towing handle is held in the "down" position.

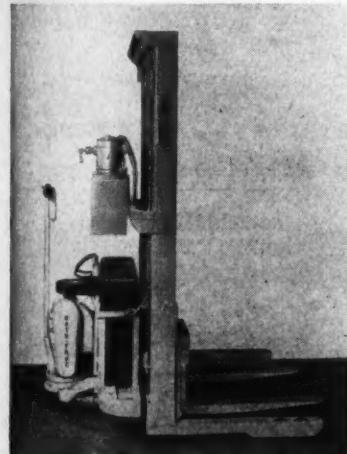
Source: This lightweight pallet truck is built by Lyon-Raymond Corp., 2468 Madison St., Greene, N. Y. . . or for more information check CP 2917 on handy form, pages 2 and 3.

Operate high lift truck in 6' aisles with pallet 36" x 48" . . .

powerful 12-volt interchangeable motor unit uses little battery power; lifts up to 4000 lbs

Uses: Lifting and transporting 4000 lb loads at up to 80" lift, 2000 lbs up to 144" lift, depending on size of outriggers and fork width and length.

Features: Motor unit is interchangeable and is quickly accessible for inspection and servicing. Truck has been re-designed so that underclearance is now 2" from bottom of outrigger to floor. Exceptionally compact, permitting operation in a 6' aisle with a 36" x 48" pallet.



Distance from back of forks to front of motor unit is 33"

corner of battery carrier is rounded, permitting a 6" reduction in turning radius.

Source: Telescopic Hi-Lift Walkie Trucks are built by The Moto-Truc Co., Dept. CP, 1953 East 59th St., Cleveland, Ohio . . . or for more information check CP 2918 on handy form, pages 2 and 3.

Quickly unload granular material with gondola car shaker

Large shaker, designed to fit all drop-bottom gondola cars, is pictured, specified, and discussed in 6-page, 2-color folder. Heavy steel construction, large shoe-contact area, and heavy duty, isolated 15 hp motor are described. States that granular materials, even though packed down in transit or frozen in winter, are removed from cars in 2 or 3 minutes by use of shaker. Designed to hang level from hoist cables to eliminate time required to center it on car flanges.

Construction details are revealed in schematic diagrams. Bul. 07B7221, issued by Allis-Chalmers Mfg. Co., Dept. CP, 1151 So. 70th St., Milwaukee 1, Wis. When inquiring specify CP 2919 on handy form, pages 2 and 3.



PRECISION CONTROL

— for pin point placement of heavy loads

every handling job is easier with **TOWMOTOR MH!**



FINGER-TIP HYDRAULIC CONTROL another Towmotor efficiency feature!

Hydraulic lifting and tilting controls, plus steering column gear shift . . . all in easy reach for precision placement of heaviest loads!

TOWMOTOR precision controls enable one man to handle and place all loads swiftly and accurately. In loading, unloading or stacking right up to the ceiling, TOWMOTOR Mass Handling simplifies difficult handling jobs, with all controls engineered for the operator's convenience. Compare the Efficiency Features of TOWMOTOR with any other lift truck. You'll see why TOWMOTOR makes every handling job easier, faster, safer. Write for current issue of Handling Materials Illustrated. TOWMOTOR CORPORATION, Division 23, 1226 East 152nd Street, Cleveland 10, Ohio. Representatives in all Principal Cities in U. S. and Canada.

TOWMOTOR
THE ONE-MAN-GANG

**FORK LIFT TRUCKS
and TRACTORS**

RECEIVING • PROCESSING • STORAGE • DISTRIBUTION

When inquiring check CP 2920 on handy form, pgs. 2-3

Use Self-Dumping Containers



NOW: SIMPLE - SAFE - SPEEDY MATERIAL HANDLING

Save 50%
Labor-Time

WITH

ROURA Stainless Steel HOPPERS

Self-Dumping

EASY TO CLEAN and TO KEEP CLEAN

Especially designed for use in the Chemical Industry, these new Roura STAINLESS STEEL Self-Dumping Hoppers are simple to operate. They are ideal for quick, safe and economical handling of corrosive materials—whether wet or dry, hot or cold. Labor and Time costs can be cut 50%—only one man is needed for distributing and unloading—and he does this in much less time than ordinarily required under old-fashioned manual methods. Thousands of Roura Hoppers (which fit any standard fork or platform lift truck) are in constant daily operation, serving and saving for such firms as Ford, Champion Porcelain, General Electric, National Carbon, International Harvester, etc.

By a simple lift of the exclusive release handle the ROURA HOPPER dumps, rights, and locks itself securely. Sizes— $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{2}$ and 2 cubic yards; the ROURA HOPPER can also be designed for flat trucks and in other sizes to meet specifications. Also, it can be equipped with special flanges that permit stacking to desired tiers for storage or future distribution of materials—conserving valuable floor space. Priced below all competition, the ROURA will quickly pay for itself many times over.

Write today for detailed brochure, "You Can
Save 50% Labor-Time."

ROURA IRON WORKS, Inc.
1413 Woodland Ave. Detroit 11, Mich.

When inquiring check CP 2921 on handy form, pgs. 2-3

Page 38

MATERIAL HANDLING

Tube and screw conveyor
both revolve; materials
can't lodge within . . .

assures more sanitary movement of bulk materials



"Screw-Flo" conveyor

Uses: Screw conveyor for improved sanitation in moving bulk materials.

Features: Both the tube and the screw revolve, preventing material from caking or lodging in tube, and from sifting to bottom of tube despite scant clearances.

Hence, all material is conveyed out, none remaining within the system to spoil or contaminate future loadings.

Description: Tube revolves slowly at about 2 rpm while screw travels at customary rapid speed.

Source: A development of Screw Conveyor Corporation, Dept. CP, 700 Hoffman St., Hammond, Ind. . . or for more information check CP 2922 on handy form, pages 2 and 3.

No danger of over-charging
batteries with automatic
motor-generator . . .

furnished ready for operation; especially suitable for central service charging stations

Uses: For charging motorized hand-truck batteries.

Features: Heart of the charger is a motor-generator

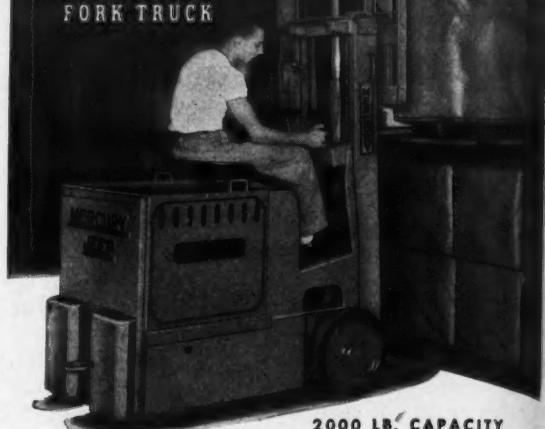


4-circuit motor-generator battery charger

set, equipped with 2-bearing ball bearings sealed for life against moisture, dust and dirt.

Rotor is cast aluminum. Horizontal motor-generator oper-

MERCURY "JEEP" FORK TRUCK



2000 LB. CAPACITY
COMPACT DESIGN



MERCURY

THE MERCURY MANUFACTURING CO.
4020 S. Halsted St., Chicago 9, Ill.

TRACTOR — TRAILERS — LIFT TRUCKS

When inquiring check CP 2923 on handy form, pgs. 2-3

THOMAS "SPRING BALANCED" DRUM TRUCK



Stands Upright
When Not in Use

- NO ROCKING, NO LIFTING, LOADS ITSELF
- STRONG, LIGHTWEIGHT, BALANCED
- HANDLES BARRELS AND DRUMS UP TO 1000 LBS.
- RUBBER TIRED OR SEMI-STEEL WHEELS

Handle more barrels per day with this truck that automatically loads and unloads—never has to be lifted. Wheels stay on the floor at all times. A rugged coil spring, enclosed in a steel housing, gives faster, smoother action when "breaking over" a load and permits this truck to stand conveniently upright when not in use. Securely cradles and carries steel drums or wood barrels regardless of bilge size. Two-in-one chime hook adjusts to any height. Illustration at left shows how pressure with foot and an easy pull on the handle automatically loads truck without raising it from the floor. Curved handlebar, equipped with rubber grips, is shaped to keep trucker's hands in natural position for full control of load. Molded-on rubber tired, or semi-steel wheels are equipped with Hyatt roller bearings. We invite you to use a NO. 94 THOMAS Drum Truck for 30 days. You can return it if you are not thoroughly pleased.

THOMAS TRUCK & CASTER CO.

521 Mississippi River

Keokuk, Iowa

When inquiring check CP 2924 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

ates at safe, slow speed of 1750 rpm, providing long life and a cooler, more efficient motor.

Description: The multiple circuit motor generator charger for charging lead-acid batteries has each circuit equipped with an inverse temperature-compensated voltage sensitive relay and an electrically driven selective time clock switch. This combination insures positive automatic shutdown at the end of charging period for each battery circuit. When all batteries have reached full charge, the motor-generator set shuts down automatically.

The motor generator for charging nickel-alkaline batteries has each circuit equipped with an electrically driven selective timeclock switch, providing automatic cut-off at the end of the charging period. Lead batteries are charged in 8 hours; nickel-alkaline batteries in 7 hours.

Two and four circuit models, the latter illustrated here, have the motor, generator set, and all electrical connections, relays, and working parts mounted inside the control cabinet. A six-circuit model has the motor starter and all controls mounted within the charging control cabinet, with the motor-generator set as a separate unit. Single-circuit models are also available.

Source: The Hertner Electric Co., Dept. CP, 12690 Elmwood Ave., Cleveland, 11, Ohio . . . or for more information check CP 2925 on handy form, pages 2 & 3.

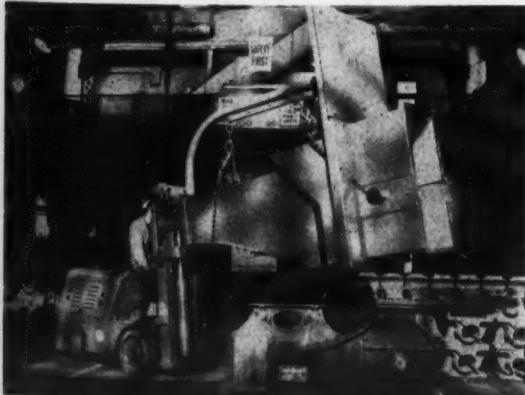
**Bulky 5000-pound objects
lifted by gas fork truck
with aid of boom . . .**

heavy-duty accessory readily interchanged with forks when moving odd-shaped loads.

Uses: For use with builder's 5000 lb fork truck in handling long bars, bulky and odd-shaped material and also in reaching over machinery and stored material for lifting operations.

Features: Easily interchanged with forks and attached to the carriage in the same manner.

Description: Has 5000 lbs. capacity at 20" load center. The swivel hook can be positioned in any of six different



Fork truck boom lifts up to 5000 lbs at 20" load center

places on the lifting boom for carrying various loads. It can also be used with another swivel hook, as illustrated, for lifting bulky equipment.

Source: Heavy duty boom, and F-50 fork truck for which it is especially designed, are built by The Buda Co., Dept. LB, Dept. CP, Harvey, Ill. . . . or for more information check CP 2926 on handy form, pages 2 and 3.



Indoor Snowdrifts Reclaimed!

Great Snowdrifts of bulk potash, impossible to reclaim through gates and gravity feed because of caked condition, are now reclaimed from indoor storage direct from piles . . . with an S-A designed bulk material handling system!

For nearly 50 years, S-A engineers have been designing and installing bulk materials handling systems to meet the specialized needs of a wide variety of industries. When you have a bulk conveying system designed by S-A, you can be sure it will handle maximum tonnage at lowest cost per ton.

Whether you plan to improve your present conveying system or install an entirely new one, let S-A engineers submit their recommendations to you first. There's no obligation on your part. Write today.

AMERICAN POTASH AND CHEMICAL CORP., TRONA, CALIFORNIA

Reclaiming of bulk potash is accomplished with a shovel and an S-A portable unit consisting of hopper, screw feeder, crusher and bucket elevator. Crushed potash is elevated to S-A reclaiming belt conveyor suspended from roof, and is then conveyed to shipping dock where S-A centrifugal action box car loaders quickly fill cars with bulk potash.

STEPHEN S-A DAMSON

11 Ridgeway Avenue, Aurora, Illinois MFG. CO. Los Angeles, Calif. • Belleville, Ontario

DESIGNERS AND MANUFACTURERS OF ALL TYPES OF BULK MATERIALS HANDLING EQUIPMENT

When inquiring check CP 2927 on handy form, pgs. 2-3

NON-SPILLAGE OF VALUABLE MATERIALS

is
assured
When You
Use This

COVERED Owen Bucket

Consistent capacity grabs are obtained with rapid, complete discharge. Shown here handling grain, but this covered bucket is adaptable to many sulphur materials.

WRITE TODAY
FOR COMPLETE DETAILS

A HOPPER AT
EVERY SITE

THE OWEN
BUCKET
COMPANY

7050 Breakwater Avenue, Cleveland, O.

Branches: New York, Philadelphia, Chicago, Berkeley, Calif.

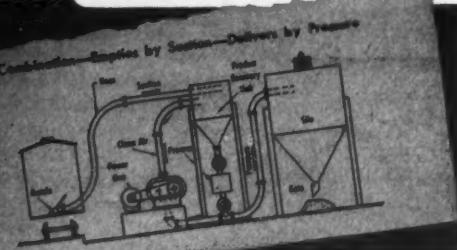
When inquiring check CP 2928 on handy form, pgs. 2-3

Save
TIME
and LABOR
•
LOWER
YOUR
COSTS...
with this
BEAUMONT
PNEUMATIC
CONVEYOR

This Beaumont Pneumatic Conveyor System is tailored to the requirements of the process industries. With it, you can move ores and fine, crushed or granular chemicals anywhere a pipe can be run. It's efficient in operation—saves time and labor and reduces handling costs.

The Beaumont Conveyor can be supplied to utilize suction or pressure or a combination of both, as illustrated. Sizes are available for capacities from 1 to 100 tons per hour.

Since the job and material to be conveyed determine the general design of the system—your best bet is to acquaint us with your particular problem and let us quote on the most efficient type and size to serve your needs.



BERUMONT BIRCH COMPANY
1516 RACE STREET • PHILADELPHIA 2, PA.

Designers Manufacturers Engineers

When inquiring check CP 2929 on handy form, pgs. 2-3

Page 40

MATERIAL HANDLING

Conveyor can use trough or flat belts on portable or stationary mounting . . .

assembled with standard sections of lattice-frame or channel-frame construction

Uses: For conveying lime, coal, crushed stone, gravel, sand, ore and similar materials. May also be used for handling various types of packages.

Features: Available with flat belt or trough belt on any type of portable or stationary mounting. All troughing rolls and return idlers are fitted with anti-friction bearings, sealed for life. Head and tail shafts have self-aligning ball bearings. All shafts are made extra heavy of standard, cold-rolled, shafting material.

Description: Conveyors are made from either lattice frame or channel steel frames. Lattice frame conveyors are sectionalized, with head and tail sections having complete shaft and pulley assemblies. Channel frame conveyors are built in convenient lengths with head and tail sections in separate assemblies.

Lattice frames are of heavy, welded, angle-iron construction with butt joints rigidly bolted. Butted joints between sections carry test load of 3½ tons with only slight deflection on 36 foot span.

Head and tail pulleys are of steel with crowned faces. Head pulleys which are used for driving the conveyor are lagged. Short conveyors driven from the tail shaft have lagged tail pulleys. Special wing-type, self-cleaning tail pulleys are optional.

Three-unit troughers are made of heavy seamless steel tubing with end sections rolled into place. Roll shafts are locked in place and are self-aligning. Troughing rolls are mounted on a combination welded and pressed steel base and brackets. Close spacing of troughing rolls under receiving hopper insures even load distribution and free movement of belt.

Return belt rollers are straight type. Belts are maker's 4 ply, 28 oz. duck, high friction and high tensile strength. 1/8" top cover; 1/32" bottom cover.

Receiving hopper is 3/16" steel plate with rubber belt flashing.

Standard sections: tail, intermediate and head. Intermediates are used to provide variations for specific applications. Head and tail sections are 20' long. Intermediate sections are 5, 10, 15 and 20' lengths. Belt widths: 18", 24", 30", and 36".

Source: Model 487 sectional conveyor is built by George Haiss Mfg. Co., Inc. (Div. Pettibone Mulliken Corp.) Dept. CP, 141st to 144th St. on Park Ave., New York 51, N. Y. . . . or for more information check CP 2930 on handy form, pages 2 and 3.

Lift truck uses hydraulic piston system on a single axis . . .

operator sits comfortably while controlling truck with automotive type controls

Uses: For pick-up, moving, spotting, tiering, loading and shipping operations. Also for pushing, rotating and many special handling jobs performed by means of accessories, fork adjusters and other mechanisms.

Features: The first series of this line of truck has a free-lift of 66 inches. These models can reach 130 inches from the floor. Maximum carrying range of these trucks

PROMPT DELIVERY

HERCULES *Aero*

(RUBBER CUSHIONED)
and

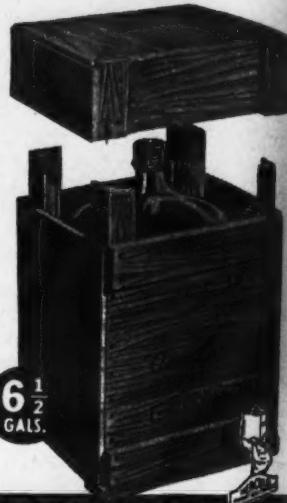
HERCULES

(CORK CUSHIONED)

CARBOY BOXES

Available In

5 & 13 gallon sizes
to comply with ICC-
IA. Available in 6½
gallon size to com-
ply with specifi-
cation ICC-ID.



NATIONAL BOX & LUMBER COMPANY

HOME OF HERCULES CARBOY BOXES • NEWARK 5, N.J.

When inquiring check CP 2931 on handy form, pgs. 2-3

**MOVING
POURING
MIXING
EMPTYING
You Save Much More**



When You Get
ALL FOUR

When four operations can be handled by one piece of equipment there is sure to be more foldin' money available for other things. The HODGSON BARREL CART was specifically designed to Move . . . Pour . . . Mix . . . and Empty heavy barrels and drums containing liquids or powders. Write Hodgson for more detailed information.

DEALER'S INQUIRIES INVITED

HODGSON ENGINEERING &
MANUFACTURING **COMPANY**
7th & Rockford Tulsa, Okla.

When inquiring check CP 2932 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

MATERIAL HANDLING

is 6000 pounds. Overall collapsed height is only 83 inches. A second series has an overall collapsed height of barely 63 inches, a free-lift of 51 inches and a total reach of 100 inches.



Operator is seated to run truck with automotive type controls

Duplex lifting system employs a hydraulic piston assembly on a single axis which first thrusts upward to accomplish the free lift and then downward to extend the telescopic mast for the second stage of lifting.

Rigid hydraulic lines are of seamless steel tubing with forged steel high pressure fittings.

Description: A complete selection of trucks meets maximum capacity requirements of 3000, 4000, 5000, 6000, 7000 and 8000 pounds. All are operated with operator-driver seated.

The hydraulic lifting unit offers the advantage of low pressure operation. Hydraulic lift and tilt are achieved through an electric motor driven pump. Hydraulic lines and packing are subject to lower stresses. The tilting mechanism is also hydraulically operated. Mast can tilt forward 5 degrees or backward 10 degrees. Tilting is actuated by two double acting piston type cylinders which provide load rigidity.

Each hydraulic brake is sealed and individually mounted within the wheels over wheel bearings. Tires are cleated cushion type. Double reduction and hypoid gears drive axle in oil-tight housing.

Source: "Lift-King" electric trucks are built by Philadelphia Div., Yale & Towne Mfg. Co., Dept. CP, Philadelphia 15, Pa. . . . or for more information check CP 2933 on handy form, pages 2 and 3.

Accessories speed, simplify material handling

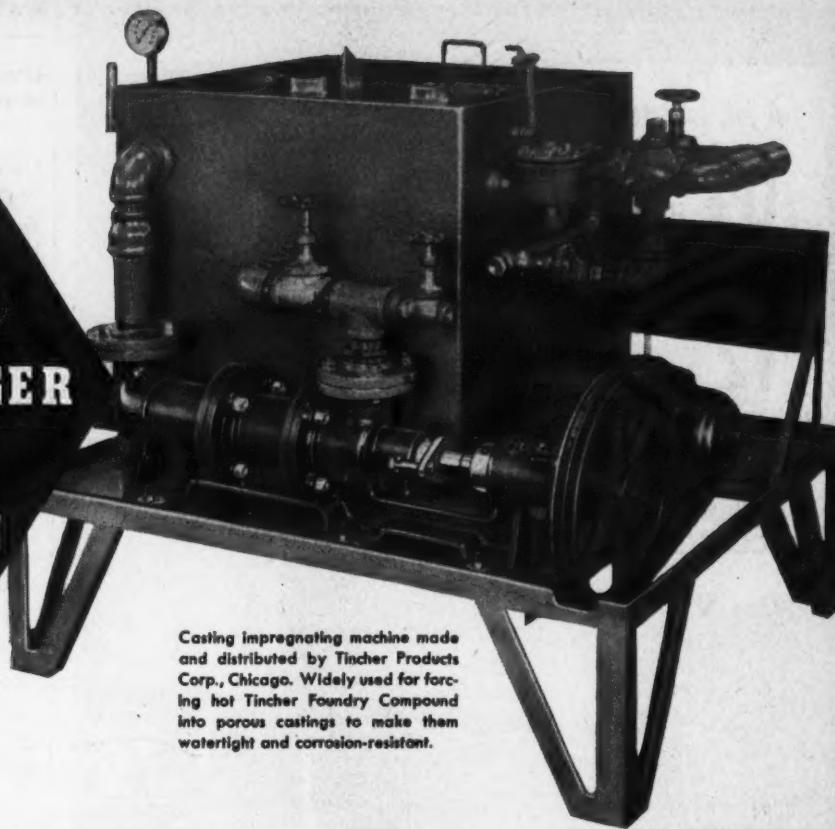
Many material handling accessories, such as barrel skids, hand trucks, dollies, reel trucks, stacking frames, trucks and tractors, etc., are pictured and discussed in 4-page, 2-color bulletin.

Other items, all described as time savers in small plants, congested areas, etc., include carboy pourers, racks for draining barrels and drums, bar stock racks, carton and case trucks, storage racks, manual lift trucks, etc. Bul. 4881, issued by Barrett-Cravens Co., Dept. CP, 4609 So. Western Blvd., Chicago 9, Ill. When inquiring specify CP 2934 on handy form, pages 2 and 3.

In all cases, sit-down features and automotive type controls—steering wheel, foot acceleration, pedal brakes, and gear-shift type lifting controls mounted on steering column—contribute to utmost ease and precision in operation.

In addition to high stacking, the trucks embody fast lifting with a slow lift whenever desired for accurate spotting.

**PUMPS
NINETY
TIMES LONGER
WITHOUT
ATTENTION**



Casting impregnating machine made and distributed by Tincher Products Corp., Chicago. Widely used for forcing hot Tincher Foundry Compound into porous castings to make them watertight and corrosion-resistant.

R & M MOYNO "progressing-cavity" pumps—used more and more for handling chemicals and abrasives—have solved another tough pumping problem. Says A. B. Tincher, manufacturer of casting impregnating machines, "Our oxide compound is hot and highly abrasive—difficult for ordinary pumps to handle. But not for Moynos. In one typical installation, a Moyno was still going strong after 90 days without attention. Other pumps needed adjustment every day. Moynos are ideal for the job!"

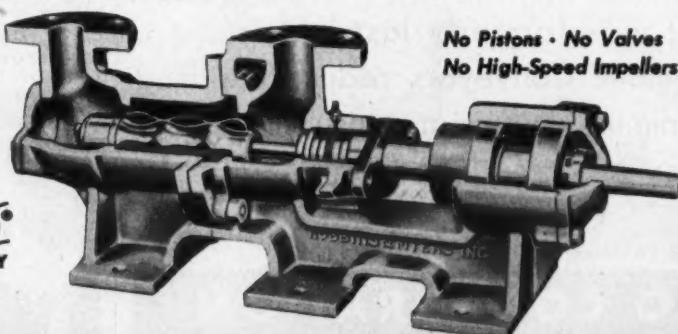
THIS PUMP PUMPS EVERYTHING. It's the amazingly simple and effective pumping principle that makes Moynos so capable. A helical rotor turns in a double-helical stator; forms "progressing cavities" that pass

particles and solids in suspension—handle virtually everything from volatile liquids to non-pourable pastes. Continuous, ever-changing seal lines protect working surfaces from concentrated wear; make parts last longer. Moynos are self-priming—reversible—deliver smooth, non-pulsating discharge at pressures to 1000 p.s.i.

FREE BOOK GIVES THE ANSWERS

If pumping problems are your headache, Moynos may be the cure. Get the full story from Book No. C-22P. It explains "progressing-cavity" pumping; gives types, sizes, uses. Write today for your free copy.

No Pistons • No Valves
No High-Speed Impellers



**R & M
MOYNO
PROGRESSING-CAVITY
PUMP**

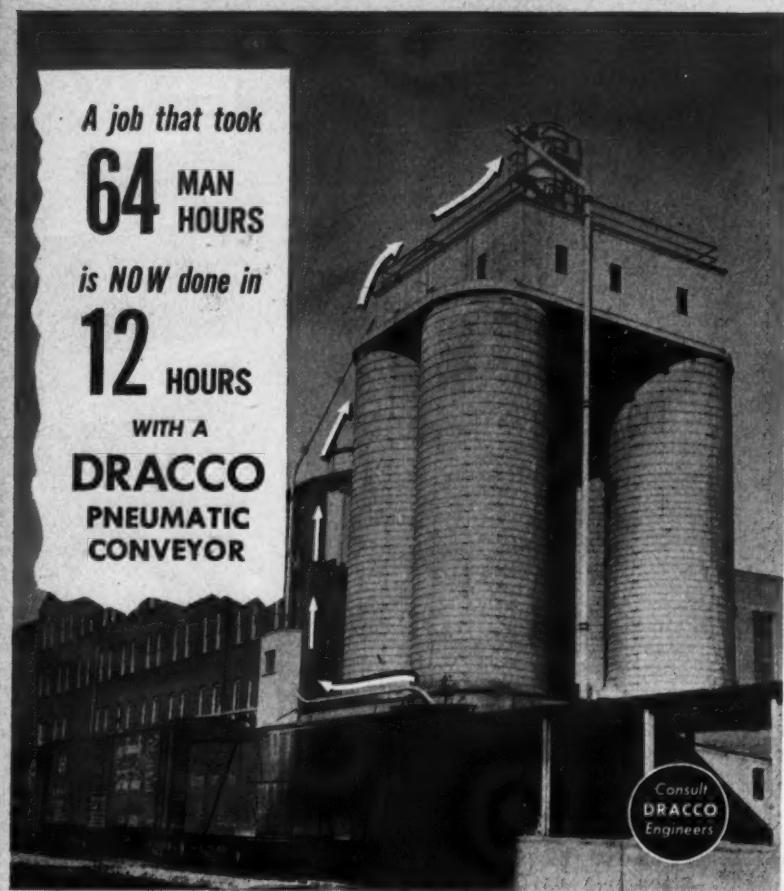


ROBBINS & MYERS • INC. MOYNO PUMP DIVISION

Springfield 99, Ohio • Brantford, Ontario

MOTORS • HOISTS • CRANES • FANS • MOYNO PUMPS • FOUNDED 1878

When inquiring check CP 2935 on handy form, pgs. 2-3



A job that took
64 MAN HOURS
is NOW done in
12 HOURS
WITH A
DRACCO
PNEUMATIC
CONVEYOR

DRACCO Pneumatic Conveyors are making large savings in hundreds of plants moving chemicals, grains and granular materials. In the installation illustrated above it formerly took 64 man hours to unload a car. The same job is now done in 12 man hours with a DRACCO Pneumatic Conveyor. In addition to this there is also a 10% saving in material — that was formerly lost in handling. DRACCO Pneumatic Conveyors reduce handling costs to the minimum. Why not consult DRACCO Engineers? They have reduced handling costs for many.

For Further Information Write

DRACCO CORPORATION

4060 E. 116th St., Cleveland 5, Ohio New York Office: 130 W. 42nd St.

DUST CONTROL EQUIPMENT
PNEUMATIC CONVEYORS • METAL FABRICATION

When inquiring check CP 2936 on handy form, pgs. 2-3

MATERIAL HANDLING

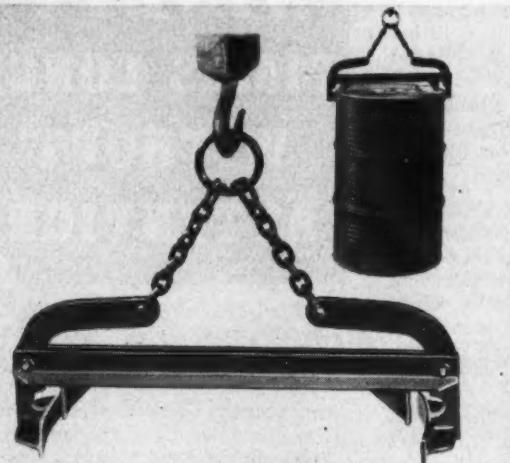
Lifts open or closed drums, in vertical position . . .

all-steel unit hangs on crane or hoist

Uses: Attached to hoist or crane, lifter handles open or closed steel drums.

Features: Drums are moved in vertical position.

Description: All-steel construction, with heavily welded chain.



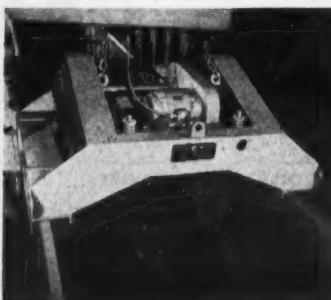
Illustrates construction and operation of drum lifter

Source. Vertical drum lifter is a product of Palmer-Shile Company, Dept. CP, 16016 Fullerton Ave., Detroit 27, Mich. . . . or for more information check CP 2937 on handy form, pages 2 and 3.

Shaker vibrating at low frequency empties cars quickly, quietly . . .

operates economically for small, medium, as well as large loads; uncoupling of cars not required

Uses: For rapid, economical unloading of bulk granular materials from open top, hopper-bottom gondola cars to conventional track hoppers. Especially suitable for unloading coal at central station power plants and boiler houses; unloading sand, coke, ore, gravel, cinders, etc. It is very serviceable for accelerating removal of frozen materials.



Shaker unloads 8-10 cars per hour

tive use of picks, sledges, air hammers, etc. Reduces injury hazard to personnel.

Description: A sturdy, compact, self-contained vi-

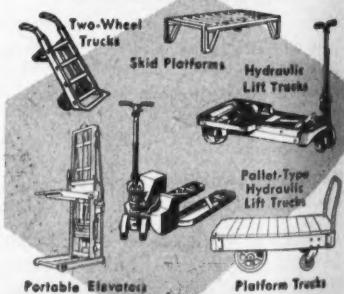
CRAMPED for Storage or Production Space?



You profit three-ways with WELD-BILT Portable Elevators . . . Improve and speed up storage efficiency — save valuable floor space — which in turn may release more space for money-making production.

Ceiling-high stacking of crates, bundles or skid-loads is simple and fast when you use a WELD-BILT Elevator. Easily-moved, electric motor powered, controlled by convenient push-button and automatic top-and-bottom limit switches, WELD-BILT elevators save both time and labor. You'll find one exactly suited to your needs — single, double, telescopic, or hinged types, motor or hand operated, in capacities from 500 to 4000 lbs. In your plant, too, WELD-BILT Elevators may more than save their cost! Write for catalog — or for profitable suggestions from WELD-BILT engineers on your materials handling problems.

Weld-Bilt Products Include:

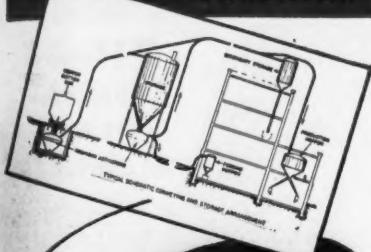


WEST BEND EQUIPMENT CORPORATION
 MATERIALS HANDLING ENGINEERS

319 Water St. WEST BEND, WIS.

When inquiring check CP 2938 on handy form, pgs. 2-3

ROBINSON
Air-Activated
CONVEYOR



THE PNEUMATIC CONVEYOR

THAT'S DIFFERENT

... AND MORE ECONOMICAL

This conveyor is designed to handle DRY-PULVERIZED or FINE-GRANULAR Minerals and Food Products. It is designed to operate with low-volume air and to remove most of the moisture from the air to prevent encrustations in the conveyor pipes. It is designed to operate without continuously moving parts such as screw feed, bearings and other parts which cause high maintenance and require frequent replacement.

The Robinson System uses closed, dustproof equipment, and is showing great economies in handling many kinds of products. It is the product of experienced Materials-Handling Engineers who will be glad to discuss your materials-handling problems when they involve dry-pulverized or granular materials.

Division of MORSE BOULGER DESTRUCTOR CO.

ROBINSON

Air-Activated

CONVEYOR SYSTEMS

211-V E. 42nd St., New York 17, N. Y.
Representatives in Principal Cities

Represented in England by Blaw-Knox, Ltd., London
Represented in the French Union and Benelux by
Cie Francaise Blaw-Knox, Paris

When inquiring check CP 2939
on handy form, pgs. 2-3

MATERIAL HANDLING

brator unit, weighing 9500 lbs., complete with a 20 hp. motor wound for 3 phase, 60 cycle, 220 or 440 volts alternating current.

The shaker is usually suspended from a hoist and is lowered to top of car to position it for operation. Cars need not be uncoupled while shaker is in operation.

Usual location of the shaker is at middle of car so that equal vibration will be imparted to both ends. By means of shoes, the unit pivots on the car top, the shoes also aiding in maintaining the unit in position.

Rotation of shaker's vibrator shaft at normal speed causes the vibrator end of shaker to rise and fall, and impart heavy hammer-like blows to the car, equal in number to the speed of the vibrator shaft. Book No. 2345 gives detailed information.

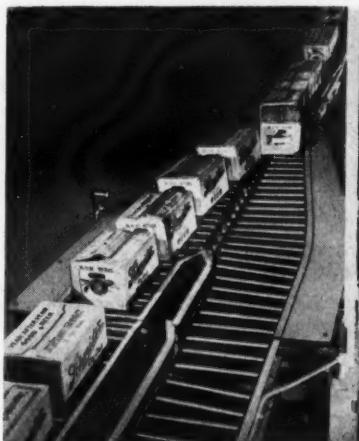
Source: Car Shaker is built by Link-Belt Co., Dept. CP, 300 West Pershing Road, Chicago 9, Ill. . . . or for more information check CP 2940 on handy form, pages 2 and 3.

**Flow of cases from conveyor
divided into two separate
lines automatically . . .**

device handles units of approximately equal width; divides in any proportion desired

Uses: Takes cases coming end-to-end from a single conveyor line and divides them into two lines in whatever proportion is desired.

Features: Speeds and simplifies division of identical or similar commodities for further handling, storage or shipment. Operation is automatic.



Device splits packages on conveyor
into two lines

that line will automatically receive cases in an amount equal to the demand. Thus each of the receiving lines will be kept filled regardless of fluctuations in demand for cases.

The conveyor that feeds the diverger should be a horizontal power conveyor, either a belt or a live roller with a speed to suit the capacity desired.

The receiving conveyors should be gravity type to permit accumulation of commodity.

Source: "Auto-Diverger" is made by Standard Conveyor Co., Dept. CP, North St. Paul 9, Minn. . . . or for more information check CP 2941 on handy form, pages 2 and 3.

**"No downtime...
...No repairs!"**

says Little Crow Milling Co., Inc.
Warsaw, Indiana



Stuebing Engineered LIFT TRUCK

**"purchase well justified" in "more efficient,
smoother and satisfactory operation."**

• Another plant reports what HydroLectric "K" owners are finding every day in every type of industry—lower power costs . . . lower maintenance costs. Many state as does this user, "no down time . . . no repairs."

• The key to these lowest possible operating costs lies in the fact that HydroLectric "K" Lift Trucks are Stuebing Engineered—built for lower handling costs by Stuebing, a founder of the lift truck system. Features include . . . twin wheel, gear driven front drive . . . heavy duty motor and controller . . . power lift . . . positive dynamic brake.



Check HydroLectric "K" proven economy against any other lift truck. For full details, write for new free bulletin H.

New HydroLectric KTL for use with semi-live skids. Users report time and cost savings up to 60%.



LIFT TRUCKS
INCORPORATED

2425 SPRING GROVE AVE. • CINCINNATI 14, OHIO



When inquiring check CP 2942 on handy form, pgs. 2-3



Now, low-priced Car Shakeout

Here's the brand new, low-priced Car Shakeout you've been waiting for! This Robins Model GS Car Shakeout will save you time, labor and money. Rugged and powerful, yet lighter in weight. You save money, too, on lighter hoist and structure.

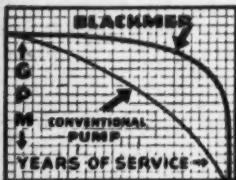
Designed especially for the smaller-size, two- or three-car-a-day plant . . . the GS Car Shakeout can unload up to fifteen cars a day. Two models: GS for general service, and HD for heavy-duty. Write now, to Dept. CP-8, Robins Conveyors Division, Passaic, N. J.

ROBINS GS CAR SHAKEOUT

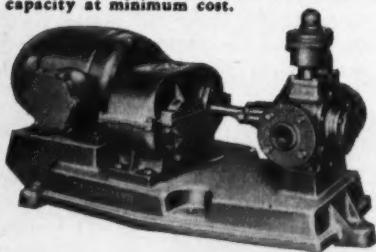
ROBINS CONVEYORS
DIVISION
Hewitt-Robins Incorporated

When inquiring check CP 2943 on handy form, pgs. 2-3

BLACKMER ROTARY PUMP PERFORMANCE



Vanes automatically compensate for wear to maintain high efficiency and low power costs. When vanes eventually wear out, simple replacement restores pump to normal capacity at minimum cost.



Capacities from 5 to 1500 g.p.m. Temperatures to 600° F. Complete operating data in Bulletin 307, "Facts About Rotary Pumps." Tells how Blackmer pumps cut costs. Write for your copy.

Choice of two constructions provides efficiency not obtainable with "universal" type pumps.

BLACKMER PUMP COMPANY
GRAND RAPIDS, MICHIGAN

When inquiring check CP 2944 on handy form, pgs. 2-3

MATERIAL HANDLING

All drums are easily drained and removed when stored in sectional racks . . .

all-welded, steel units each hold 20 drums; easily assembled in any number to meet requirements

Uses: For compact, efficient indoor or outdoor storage of drum-packaged materials such as oils, solvents, etc.

Features: Design of the racks makes any drum easily accessible when it is wanted. Material may be drawn from any drum without removing it from the rack or disturbing other drums. Additional rack sections may be added as storage requirements increase.

Description: The installation shown in the illustration is at the vast Sinclair Research Laboratories, Harvey, Ill. Drums contain various materials and experimental products.

Part of the storage racks, which have a total capacity of 300 drums, are located inside the building, and the remainder outside. A portable elevator and a fork lift truck are employed in handling drums in and out of the racks.



Racks for indoor-outdoor storage at petroleum lab

Racks are made of structural steel, with panels or frames all-welded and with no punched holes to weaken the structure.

Source: Storage racks and portable elevator are built by Barrett-Cravens Co., Dept. CP, 4609 S. Western Blvd., Chicago 9, Ill. . . . or for more information check CP 2945 on handy form, pages 2 and 3.

DC crane control, DC brake feature safety devices

Two bulletins discuss 2-shoe, 2-magnet brake and new DC crane hoist control. Magnet brake is illustrated with cutaway drawing, installation photograph; text points out that light-weight wheel, neoprene-protected bearings, heavy air-gap magnets assure quick, positive braking.

DC crane control is detailed at length in second bulletin. Several charts give load characteristics, plot hook speed against hook load, and set forth electrical characteristics under load. Several installation photos show various uses.

"2-shoe, 2-magnet DC Brake" and "DC Crane Control", issued by General Electric, Apparatus Department, Dept. CP, Schenectady, N. Y. When inquiring specify CP 2946 on handy form, pages 2 and 3.

STOP TRAMP IRON

DAMAGE with DINGS PERMA-PLATE MAGNETS



Low Cost . . . Powerful . . . Permanent . . . Highest Grade Alnico . . . No Maintenance . . . Lightweight

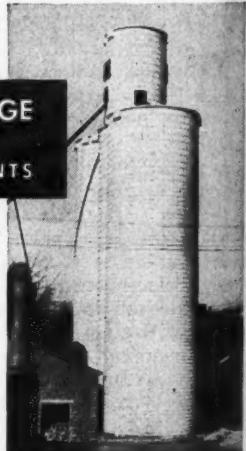
FOR low cost, permanent magnetic protection against costly tramp iron damage to vital machinery, install powerful Dings PERMA-PLATE Magnets in chutes, ducts, trays, spouts, over conveyor lines, etc. These high grade Alnico plate magnets are your best bet for maximum tramp iron removal. They work equally well with wet or dry materials, and are unaffected by atmospheric conditions in or out-of-doors. Dings PERMA-PLATE Magnets are simple to install, easy to clean and their high magnetic strength is guaranteed for mechanical life of the installation! Available in widths from 4" to 72" in 2" increments, special sizes on request. Write for Bulletin.

Dings
"HIGH INTENSITY"

DINGS MAGNETIC SEPARATOR CO.
4731 W. Electric Ave.
Milwaukee 14, Wis.

When inquiring check CP 2947 on handy form, pgs. 2-3

VERTICAL STORAGE THAT DEFIES THE ELEMENTS



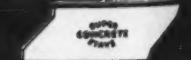
During the last 32 years, Neff & Fry Storage Bins have withstood practically everything Nature offers . . . heat, cold, moisture, corrosion . . . even fire and storm. This is due to the stonelike properties of N & F Super-Concrete Staves, plus the erection technique.

The staves have matching grooved and beaded edges. Each stave interlocks with six adjacent ones. For contents which must be kept dry, damp proofing is accomplished by buttering the edges of the staves with mastic compound, coating the inside and outside of the bin with neat cement, and then adding two coats of waterproofing compound to the outside. To withstand internal pressure, the structure is bound with galvanized steel rings, as illustrated in the accompanying photograph.

If you are interested in storage bins which last for generations, get all the facts about Neff & Fry Super-Concrete Stave Bins. Complete information is yours for the asking. Write, wire, or phone.

THE NEFF & FRY COMPANY, CAMDEN, OHIO

NEFF & FRY
STORAGE BINS



When inquiring check CP 2948 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

MATERIAL HANDLING

Extend conveyor sections to any length between 10' and 40' . . .

5, 7½ and 10' basic-length-units available; permit nesting

Uses: For loading and unloading highway trailers and box cars; handling cases in shipping and storage operations; stocking shelves or bins.

Features: Can be adjusted at the loading end to anywhere from 30" to 48" in height. Requires no set-up time. Instantly ready for action. Assembly can be made up of two to four 10' telescoping sections that run in or out under each other in step-down arrangement.

Models in 5 and 7½' sections also available.

Description: Channel steel frame construction, reinforced throughout. Angle stand construction, all stands thoroughly braced. Conveyor wheels are 2" diameter, 5/8" face. Full ball bearings revolve on a hardened inner race. Finger tip jack screw height adjustment. A simple ingenious locking arrangement automatically assures correct positioning of all sections.

Pressure brake holds conveyor in position. Sturdy 3" casters assure easy mobility. Sections lock together when fully extended so that there is no step down between sections. All lengths come in both 12" and 18" widths which have capacities of 60 to 80 lbs. per ft., respectively.

Source: The Wilkie Company, Dept. CP, 5520 Arch St., Philadelphia 39, Pa. . . or for more information check CP 2949 on handy form, pages 2 and 3.

Specifies compressors, dry vacuum pumps

Tank-mounted and base-mounted single and double stage compressors are described in 15-page, 2-color bulletin. Many cut-away drawings and photos illustrate construction and operation principles. Selection of proper compressors for differing requirements is discussed.

Single and double stage dry vacuum pumps are also detailed. Includes ratings, specifications. Bul. H-620-B30, issued by Worthington Pump and Machinery Corp., Dept. CP, Harrison, N. J. When inquiring specify CP 2950 on handy form, pages 2 & 3.

For more information on product advertised at right, specify CP 2951 . . . see information request blank between pages 2-3.

Got a Job for an Elevator?



Perfect discharge type
—Slow speed, for materials which will not readily discharge at centrifugal speeds.



Continuous Bucket Type
—High capacity at slow speed, or for friable materials.



Centrifugal Discharge Type—Suits most products. Runs at Higher Speeds.

Let LINK-BELT Show You the Right Type of BUCKET ELEVATOR

Bucket elevators handle many different materials, under differing conditions, and for that reason, Link-Belt manufactures three major types of bucket elevators. For best results in handling any specific material be sure the elevator you choose has the required features.

For instance, there are loose, free-flowing materials which will not be harmed by a certain amount of dropping or tossing at high speeds. Ashes and coal are typical, and such materials can be handled satisfactorily with the centrifugal discharge type, running at high speed, with high volume.

Friable materials which should be protected against breakage or degradation require the slower speed type, with continuous buckets to bring up the capacity. Materials that tend to stick in the bucket, and not readily discharge at high speed, are satisfactorily elevated in the Perfect Discharge type, which completely inverts the bucket and allows the contents to drop out.

For mass handling of delicate pieces in process of manufacture, there is the Link-Belt "Interno" bucket elevator, which assures extra gentle handling.

Link-Belt's vast manufacturing facilities and broad experience in all types of materials handling assure your receiving the most practical advice when you consult Link-Belt on any conveying, elevating or materials handling problem. Contact the office nearest you.

TYPES OF LINK-BELT CONVEYING MACHINERY

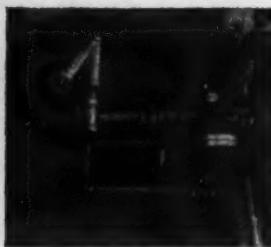
Belt Conveyors Apron Conveyors
Screw Conveyors Oscillating Conveyors
Bulk-Flo Conveyors Flight Conveyors
Chain Conveyors Bucket Elevators
Trolley Conveyors Bucket Carriers

LINK-BELT COMPANY Chicago 8, Indianapolis 6,
Philadelphia 40, Atlanta, Dallas 1, Houston 3, Minneapolis 5, San Francisco 24,
Los Angeles 33, Seattle 4, Toronto 8. Offices in Principal Cities. 31,548

LINK-BELT
CONVEYING MACHINERY
"THE COMPLETE LINE"



ARE YOUR HEATERS Getting a Break?



Two Sarco DSH 123 Regulators control each of the five large double coil heaters overhead. At times only the one section of each heater is on. Sarco ASO Ductstats shut off the coils in case of overheating. Result — Good working conditions with lowest fuel costs.

No matter how carefully you select and locate the unit heaters to fit the job to be done, complete satisfaction cannot be assured unless you also take care of the vital factors:

1. Use the right steam trap and air vent to keep the heater surfaces in contact with hot, dry steam, and remove condensate and air rapidly and completely.

2. Provide simple but effective Sarco Controls to start and stop the fans as required, or to modulate the steam supply to the heaters.

Below — two simple examples of unit heater efficiency. You can get 10 to 30% more out of your heaters by spending 1 or 2% of their cost for suitable Sarco Steam Traps and Controls. Ask for special information on unit heater hook ups.

OR BETTER YET — ASK THE SARCO MAN NEAR YOU



At Broadview Motors, Cleveland, Ohio—large doors left in cold at irregular intervals. Here Sarco Electric Thermostatic Traps and Sarco Strainer keep the rooms comfortable without unnecessary heat.



Down blast unit heater dispels mist in dye room. Sarco Float Thermostatic Traps and Sarco Strainer ideal for continuous jobs like this.

256

SARCO
SAVES STEAM

SARCO COMPANY, INC.
Represented in Principal Cities
Empire State Building, New York 1, N.Y.
SARCO CANADA, LTD., TORONTO 5, ONTARIO

IMPROVES PRODUCT QUALITY AND OUTPUT

When inquiring check CP 2952 on handy form, pgs. 2-3

Page 46

Process
Instrumentation

Measure Thickness of Sticky, Wet, Polished or Fragile Sheet Materials

Beta-ray gauge does not touch measured sheet; used on plastics, rubber, metals, textiles, etc.

USES: To measure thickness, weight per unit area or plus and minus deviations from specifications of sheet material, depending on method of calibrating meter. Used to measure cellophane and other thin plastic films, plastic and rubber sheets up to $3/16$ " thick, paper ranging from condenser paper less than 0.0002 " thick to paper board. Also used to gauge thickness of sheet metal and brass up to $.040$ " thick, thin aluminum foil, textile yarn, coated textiles, etc.

Features: Can be used to measure wet, sticky, delicate, highly polished or lightly coated sheet material, since no part of gauge touches sheet.

Moisture, clay or other materials on sheet affect readings only in proportion to their weight.

Description: Round element contains beta radiation source, strontium-90. Radiation detector is located in other element, measures radiation which is not absorbed. Sheet material to be gauged is inserted between radiation source and the detector. Part of the radiation



Beta gauge measuring basic weight of paperboard

emitted is absorbed by sheet; amount absorbed is proportional to weight of sheet.

Inherent accuracy of 'Beta Gauge', as instrument is known, is plus or minus 0.05% of sample thickness or plus or minus 0.03 mg./sq. cm., whichever is larger. Gauge automatically standardizes itself every 30 min.; drift occurring between standardization periods is within limits of inherent accuracy.

Maximum sensitive length of gauge is 15", minimum sensitive length is $1/4$ ". Power is supplied from long-life batteries which require renewal no more often than 3 times per yr. This eliminates need for closely regulated AC power supply.

Model SM-2 Beta Gauge, pictured here, is supplied complete with Brown Electronic Recorder. A non-recording Beta Gauge and a laboratory Beta Gauge are also available.

Source: Developed and made by Tracerlab, Inc., Dept. CP, 55 Oliver St., Boston 10, Mass. . . . or for more information check CP 2953 on handy form, pages 2 and 3.

Unique Pitot-Venturi Element Creates Amplified Pressure Differentials

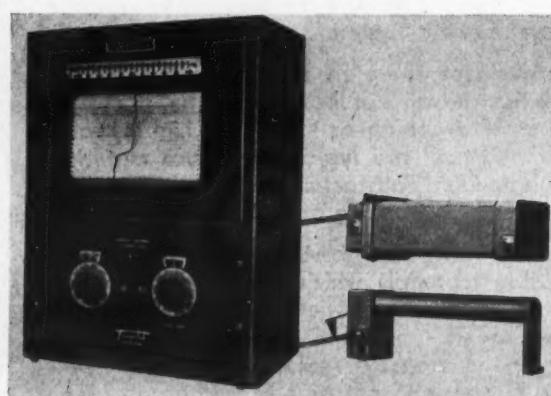
Unit has little pressure drop, can be used in large ducts carrying liquids, dry or wet gases

Uses: To produce amplified pressure-differentials for measurement of velocity or flow rate, or for simple flow indication.

Can be employed in any large duct, regardless of surface conditions, shape, or size of duct. Differentials indicate flow conditions at any one point in duct; placement of element is dependent upon intended use.

Features: Produces pressure differential amplified many times over that created by conventional Pitot tube, thus obviating necessity of using very sensitive measuring devices.

Pressure drop is very low, thus permitting use of element in high-pressure lines or very large lines where the usual orifices cannot economically be used. Cost of element is the same for any duct size, offering further economies.



Beta thickness gauge, with radiation source, detector and recorder

Element may be readily used as portable measuring device, for those installations where only periodic checking is required. May be employed where space is limited, since opening equivalent to 4" pipe is all that is required to insert element into flow line.

Description: Element consists of 2 concentric Venturis, arranged so that their openings lie in the same plane. Exit cone of inner Venturi terminates in throat of outer Venturi. Tube holds inner Venturi in place, conducts throat pressure of inner Venturi to tee located at bottom of support.

Outer tube supports outer Venturi, contains tube leading from inner Venturi. Impact hole is drilled into face of this tube just below Venturis. Impact pressure is carried in outer tube to other opening of tee.

Amplification of differential pressure is accomplished by 3 design features. Pressure measured in throat of inner

Venturi is less than line pressure. The throat pressure of the outer Venturi is less than line pressure, and since the inner Venturi ends in this lowered-pressure zone, pressure in inner throat is lowered further. Finally, the calibrating ring, which may be moved back and forth to set amplification constant at any convenient value, creates divergent cone in fluid stream, thus lowering pressure at exit of outer Venturi, thus lowering still further the throat pressure of inner Venturi.

Element may be mounted through side wall of pipe as indicated, or may be mounted in pipe tee, using cross opening as mounting base.

For measurement of wet gases or liquids containing dissolved gases, element must be mounted up from bottom of pipe to provide drainage or venting. For use with dry gas or gas-free liquids, element may be mounted in any position, preferably downward from upper surface. When used with liquids containing small suspended solids, the impact hole is plugged, and replaced by two static pressure openings on back of support tube.

When measuring rate of flow, readings should be taken at points over entire duct area, and element located at point of average velocity. Element is located at point of maximum velocity where maximum velocity must be known at all times, and it may be located almost anywhere for simple indications of flow conditions.

It is reported that usual precautions must be taken. Pulsation damping is generally required unless differential instrument is of mercury type. Calibration curves should be used for maximum accuracy. Furthermore, use with steam flows is not recommended as no provision has yet been made for free exchange of condensate and steam.

Elements are supplied in brass or in 18-8 stainless steel.

Source: Developed and produced by Taylor Instrument Companies, Dept. CP, Rochester 1, N. Y. . . or for more information check CP 2954 on handy form, pages 2 and 3.

SEPTEMBER, 1949

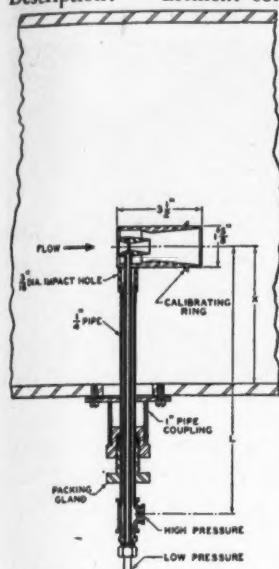


Diagram shows design features of Pitot-Venturi flow element

NOW - a Resistance Bulb with the Speed and Economy of a Thermocouple

The New Dynatherm*

FOR BETTER TEMPERATURE MEASUREMENT

- Super-fast Response.
- Highest Sustained Accuracy... permits use with very narrow scales.
- Positive Metal-to-Metal End-Contact with Well or Socket.
- Fits Any Well or Socket 1/4" Inside Diameter or Larger.

*Trade Mark

FOXBORO

REG U S PAT OFF

INSTRUMENTATION

When inquiring check CP 2955 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

End-window counters feature stability, long life . . .

units are supplied with window thicknesses between 1.5 and 3.9 mg. per sq. cm.

Uses: To detect and count alpha, beta and gamma radiation.

Features: Has plateau length of 200 to 300 volts, with slope of only 3% per 100 volts.



End-window radiation counter

Description: Model D31 is available with mica end windows of thickness from 2 to 3.9 mg per sq. cm. Model D32, of otherwise identical construction, has available window thicknesses of 1.5 to 2.0 mg. per sq. cm.

Threshold voltage is between 1050 and 1300 volts. Counting life is greater than 10^8 counts. Each unit is fitted with standard 4-prong base.

Source: End window counters are manufactured by Nuclear Instrument and Chemical Corp., Dept. CP, 223 W. Erie St., Chicago 10, Ill. . . . or for more information check CP 2957 on handy form, pages 2 and 3.

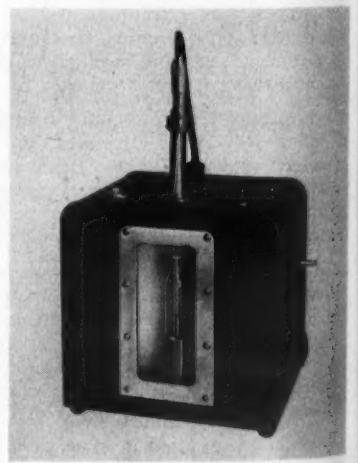
Controlled-leak regulator holds vacuum to any preset value . . .

unit has control sensitivity better than 0.05 mm of mercury; operates at any vacuum

Uses: To hold vacuum to preset value.

Features: Has control sensitivity better than 0.05 mm of mercury. White background behind regulator aids in viewing end of platinum wire for making fine adjustments.

Description: Apparatus is installed between vacuum pump and distillation system or other vacuum chamber. Operates on principle of controlled leaks, admitting air constantly, if necessary, through 1 end of double glass stopcock.



Vacuum regulator

Leakage at other end of stopcock is controlled through platinum-to-mercury regulator, which actuates a solenoid through a relay to open or close a leak as required.

Within any 100 mm range, the Micro-set regulator, as it is designated, is the only adjustment required. Regula-

VIRTUALLY UNBREAKABLE!

So strong that the pH-sensitive bulb can withstand as much pressure as the thick stem itself!

Abrasion resistant—unusually rugged for long life and reliable measurement even in highly abrasive slurries!

Chemical durability—excellent in the strongest acids and alkalis . . . even at elevated temperatures!

COVER EXTREME TEMPERATURES!

30° to 130° C at high pH—with the new high temperature—high pH glass.

—20° to 100° C—with the new general-purpose glass. Will withstand even repeated freezing.

NOW-NEW BECKMAN pH Electrodes

UNPRECEDENTED pH RANGE!

0 to 14 pH—with the high-temperature high-pH glass . . . only small reproducible deviation near extreme limits, even at high temperatures.

0 to 11 pH—at room temperature and 0 to 10 pH at boiling for the general-purpose glass . . . without correction for sodium ions!



IMPROVED CONSTRUCTION!

Simplified, heat-resistant construction eliminates wax filling . . . retains patented Beckman internal shielding . . . increases measurement precision.

Only Beckman Glass Electrodes offer all of these features:

► **RAPID RESPONSE** . . . accuracy with speed and convenience.

► **STABILITY** . . . to match the high precision of BECKMAN pH METERS.

► **INTERNAL SHIELDING** . . . gives complete freedom from outside electrostatic interference.

► **INTEGRAL LEADS** . . . continuous insulation into the electrode . . . connections located on protected panel board.

► **EXTREME TEMPERATURE RANGE** . . . Several types permit use from below

These new electrode glasses are now being used in several Beckman electrode styles. As rapidly as possible, they will be available in the full line of Beckman Glass Electrodes.

freezing to boiling and above!

► **ENTIRE pH SCALE** . . . Very small sodium ion errors . . . e.g., with high-temperature high-pH glass, only 0.2 pH deviation at 13.7 pH in 1 N sodium hydroxide.

► **FACTORY SEALED** . . . rigidly tested . . . no maintenance.

► **UNIQUE CHEMICAL DURABILITY** . . . in alkali . . . in acid . . . in dilute solutions.

And . . . **REALLY TOUGH** . . . can even be used as a stirring rod!

Constant Research over the years has maintained Beckman Leadership in the instrumentation field . . .

—Beckman pH Meters and Glass Electrodes
—Beckman Ultraviolet, Visible and Infrared Spectrophotometers
—Beckman Radioactivity Meters and Special Instruments . . . Unsurpassed for Reliability!

BECKMAN INSTRUMENTS
control modern industries

BECKMAN INSTRUMENTS • National Technical Laboratories, South Pasadena 11, California

When inquiring check CP 2956 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

tor operates at any vacuum from atmospheric pressure to absolute vacuum.

Glass parts are fitted with ground glass connections. Entire unit is housed in dust-proof enclosure. Dimensions are $7\frac{1}{2}$ " x 12" x 18".

Source: Micro-set Manostat is produced by Precision Scientific Co., Dept. CP, 3737 Cortland St., Chicago 47, Ill. . . . or for more information check CP 2958 on handy form, pages 2 and 3.

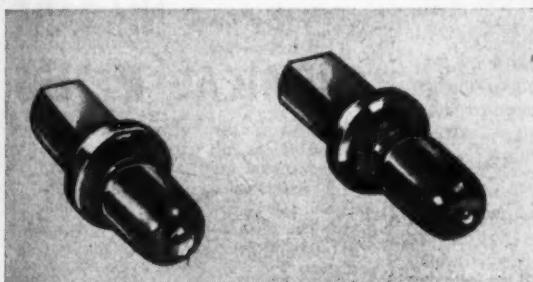
Hardened-steel ball penetrators for Rockwell testers . . .

precision-machined steel balls for variety of scales assure hardness readings of high accuracy

Uses: For accurate hardness testing in all makes of Rockwell testing machines.

Features: The interchangeable, hardened-steel ball penetrators have very fine, smooth finish. They are ground to precise roundness, providing smooth, even penetration for highly accurate readings.

Description: Available in standard sizes $1/16$, $1/8$, $1/4$ and $1/2$ "; other sizes available, if desired. For use with



Steel ball penetrators for Rockwell hardness testing machines

Rockwell scales B, E, F, G, H, K, L, M, P, R, S, V, 15-T, 30-T and 45-T. $1/16$ " size is provided as standard equipment with manufacturer's superficial hardness tester, and both the $1/16$ and $1/8$ " sizes are furnished with manufacturer's standard tester.

Source: Clark Instrument Co. Inc., Dept. CP, 10200 Ford Road, Dearborn, Mich. . . . or for more information check CP 2959 on handy form, pages 2 and 3.

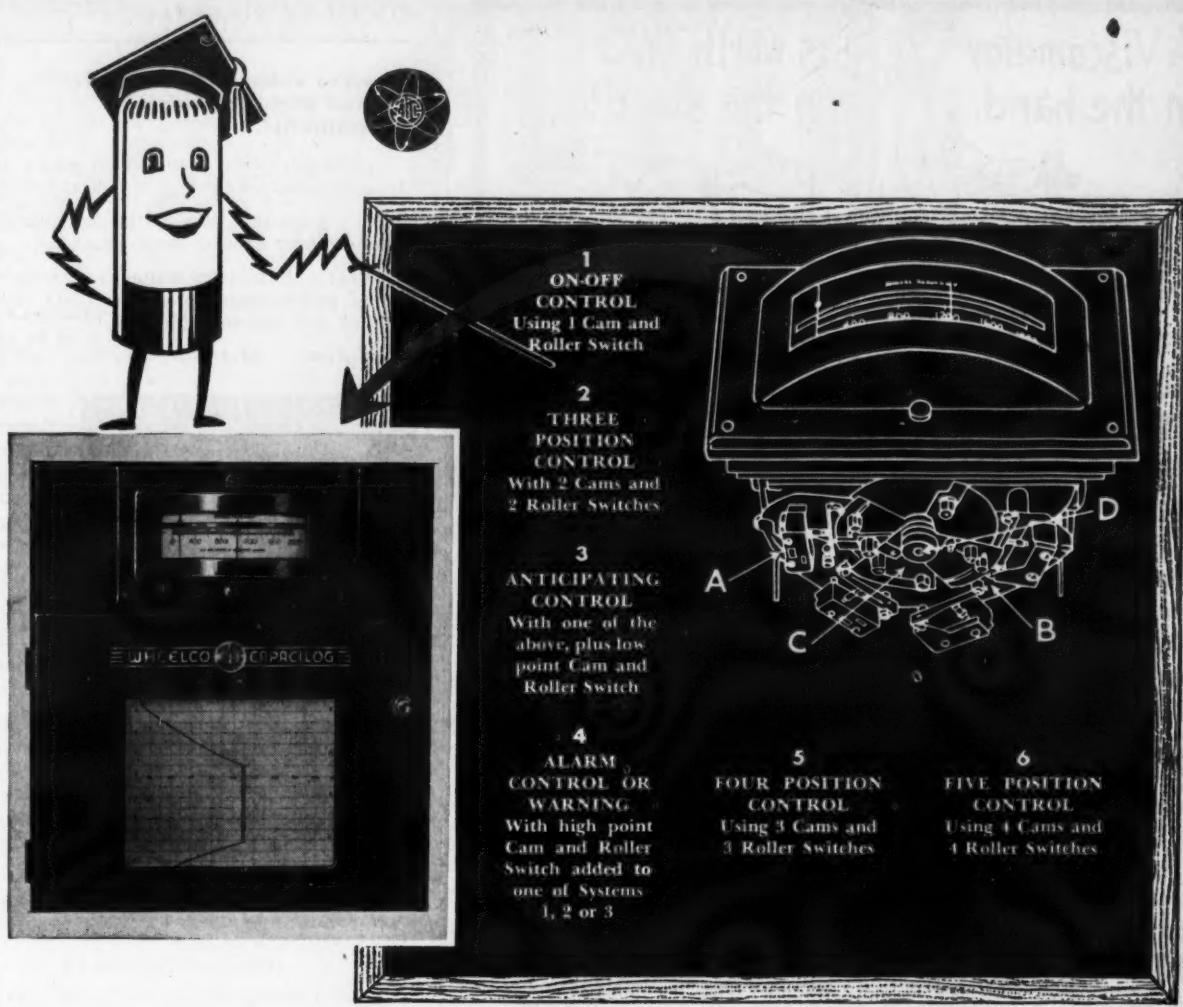
Individually-calibrated rotameters require little maintenance

Line of rotameters featuring clear view of float at 45° angle, strong safety shielding, is detailed in 4-page bulletin. Discusses dowel pin construction which automatically aligns meter, permits take-down and assembly by inexperienced personnel. Stainless construction of all internal fittings, bolts, and dowels assures comparatively maintenance-free operation. Meters may be supplied in all-stainless steel if specified.

Each meter is individually calibrated. Illustrates and describes precision rotameters, multi-flow rotameters for comparing related flows, and dashpot rotameter for pulsation damping. Reports that meters are available in sizes from $1/4$ " to 2" with screwed connections, from 1" to 3" with flanged connections.

Bul. 6, issued by Brooks Rotameter Co., Dept. CP, Lansdale, Pa. When inquiring specify CP 2960 on handy form, pages 2 and 3.

SEPTEMBER, 1949



Processing Industries are sold on the CAPACILOG because . . .

Engineers like the control flexibility of this Strip Chart Recorder provided by a simple micro switch arrangement. The "blackboard" illustration shows 4 roller type lever micro switches (A) located on the Control Switch Base (B) Control Cams (C) move with Vertical Shaft (D) which is linked to the Pen Assembly. With this simple mechanism, providing 6 types of control functions, a permanent record of a multitude of process vari-

ables—temperature, voltage, amperes, speed, etc.—may be obtained.

Whether your application is in the Metal, Chemical, Ceramic, Plastic or Laboratory Classification, there is a model for your purpose.

Capacilog Strip Chart Recorders use the same "Wheelco Electronic—No Contact—Principle" that is featured in 40,000 indicating pyrometer controllers which have successfully been applied in industrial processing in the past.

WHEELCO INSTRUMENTS COMPANY
841 W. HARRISON ST., CHICAGO 7, ILL.

Please send me the Bulletin(s) checked below:

C2—Strip Chart Recorder
 Z6500—Condensed Catalog

Name..... Title.....

Company.....

Street.....

City..... State.....

WHEELCO **Electronic** **CONTROLS**
RECORDERS • COMBUSTION SAFEGUARDS • CONTROLLERS

When inquiring check CP 2961 on handy form, pgs. 2-3



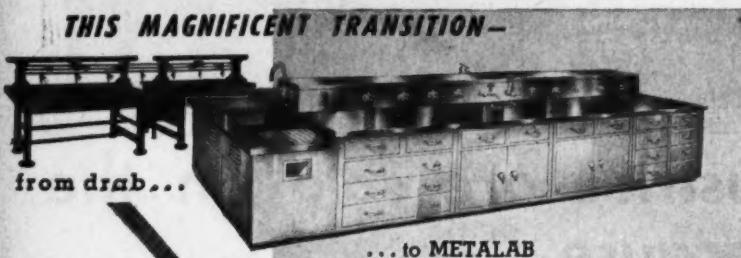
is worth TWO
on the stand!

The BROOKFIELD portable Viscometer

Rapid viscosity readings at point-of-process are far more valuable than remote lab readings not taken under operating conditions. Viscosity control is made practical through the use of this dependable instrument.

BROOKFIELD ENGINEERING LABORATORIES, INC.
205 Porter Street, Stoughton, Mass.

When inquiring check CP 2962 on handy form, pgs. 2-3



--points the way to



Send for this new Complete Catalog on Laboratory Furniture and Equipment.

SECTIONAL

LABORATORY FURNITURE
and EQUIPMENT by

M E T A L A B
Equipment Corp.

1535 Dean St., Brooklyn 13, N. Y.

When inquiring check CP 2963 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

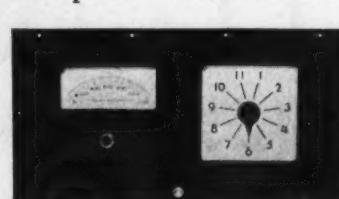
**Measures exhaust temperatures
of diesel engine cylinders
automatically . . .**

pyrometer with motor-driven rotary switch provides continuous monitoring of several temperatures

Uses: Automatic and continuous monitoring of diesel engine cylinder exhaust temperatures.

Features: Eliminates manual switching from one position of measurement to another, thus reducing personal attention and assuring efficiency.

Description: Motor-driven rotary switch has leaf-type contact assemblies. Overlaps in switch prevent pointer of pyrometer from returning to zero between positions. Rotation speed is 1 rpm; switch can be stopped at any position by pushing button on front panel. Switch positions are indicated on large clock-like dial which can easily be read from 20°.



Temperature-indicating scale (left) and switch-position dial are on front of continuous monitoring pyrometer

The Alnor 1160 pyrometer can be equipped with excess-temperature cut-out which activates alarm systems or engine shut-down control if any cylinder reaches excessive exhaust temperatures. Manufacturer's dependable R-type movement is used in pyrometer, but it has new, more legible scale.

Source: Illinois Testing Laboratories, Inc., Dept. CP, 420 N. La Salle St., Chicago, Ill., is the maker . . . or for more information check CP 2964 on handy form, pages 2 and 3.

Much higher sensitivity reported for gamma ray detector . . .

excellent directional characteristics of compact tube can be improved further by external shielding

Uses: Detects gamma rays. Used in tracing medicinal isotopes, for analytical chemistry, in searching for radioactive ores, in thickness gauges, industrial control, radiation survey meters.

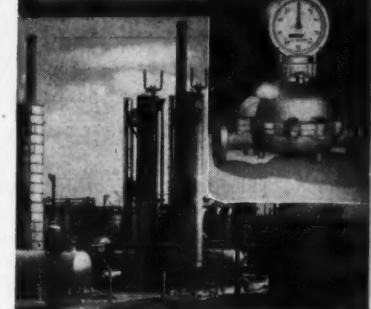
Features: Compact 6" long x 2" diameter tube is said to be 5 to 6 times more sensitive than standard tubes now used for tracing medicinal isotopes. It is also reported to be more directional than tubes hitherto available. Directional characteristics may be increased through use of external lead shielding so that maximum effectiveness is obtained within 10° of either side of its "window".



Gamma ray detection tube

Description: The GG306 gamma ray detector is self-quenching, operates at 960 volts and has average Geiger threshold of 900 volts. It provides 810 counts per minute

CORROSIVE LIQUIDS



with the new NIAGARA CHEMICAL METERS

NOW you can obtain accurate measurement of corrosive liquids with a meter that will operate with high resistance to corrosive action! That's the outstanding combination you get with the new NIAGARA Stainless Steel Chemical Meter — manufactured by the Buffalo Meter Company.

NIAGARA chemical meters have works of type 316 stainless steel so can be used, under correct conditions, for many liquids including:

Sodium hydroxide	Acetic acid
Sulphuric acid (95-100%)	Calcium hydroxide
Fruit juices	Vinegar
Vegetable juices	Aium. potassium sulphate
Soap	Calcium chloride

SEND COUPON for complete data!

Please send me full information on construction and capacity specifications of your new NIAGARA Chemical Meter.

Type of Service
Name
Company
Address

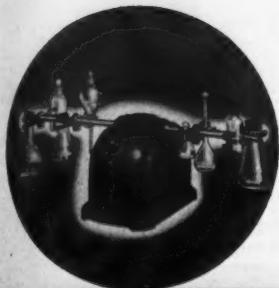
BUFFALO METER CO.

2892 MAIN STREET

BUFFALO, N. Y.

When inquiring check CP 2965 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION



"WRIST-ACTION"
SHAKER

Burrell's "Wrist-Action" Shaker is a fast, simple shaker for general laboratory use. It simulates the snap of the wrist, creating a swirling splash. The new "Finger-Grip" clamp holds most flasks, funnels and bottles. 115 V. Write for Bulletin 207.

75-775-B...8 Flask size....\$145.00



CO₂ INDICATOR

The Burrell CO₂ Indicator is a must for operating, installation and combustion engineers. CO₂ content of stack gases found simply and accurately. Excess air and per cent heat loss readily determined. Write for Bulletin 206.

40-693...CO₂ Indicator Kit...\$45.00



When inquiring check CP 2966
on handy form, pgs. 2-3

SEPTEMBER, 1949

from 5 micrograms of radium filtered through $\frac{1}{8}$ " of lead 12" from end. Maximum dead time of 100 microseconds; maximum recovery time of 800 microseconds. Suitable for input circuit impedance of 5 megohms.

Source: Developed by Electronics Division, Sylvania Electric Products Inc., Dept. CP, 500 Fifth Ave., New York 18, N. Y. . . . or for more information check CP 2967 on handy form, pages 2 and 3.

**Versatile radiation counter
combines functions of 5
instruments . . .**

compact unit acts as scaler, survey meter, counter, meter and contamination detector

Uses: To count radiation impulses, as a radiation survey meter, as a contamination detector, as a count rate meter, and as a conventional scaling unit. May also be used with proportional counters and crystal scintillation counters, if additional amplification is provided.

Features: Compact unit combines functions of many counting and detecting devices. Cost is approximately 1/3 that of total cost of separate instruments.

Can be operated 24 hours per day without overheating. Has resettable register mounted on panel.

Description: Complete unit measures only $12\frac{1}{2}$ " x $9\frac{7}{8}$ " x $8\frac{1}{2}$ ", weighs 24 lbs. Has provision for elapsed and pre-determined time timers, and for pre-set count operation.

Count rate meter has ranges of 500, 5000 and 50,000 counts per minute. Special circuit keeps meter fluctuation minimized over the 3 ranges.

Provision is made to simplify addition of extra amplification. Self-contained high voltage supply is available as either 500 or 1600 volts. Binary scalers of 8 or 64 may be specified, or decade scalers of 10 or 100 are furnished when required.

Source: Product of Nucleonic Corporation of America, Dept. CP, 499 Union St., Brooklyn 31, N. Y. . . . or for more information check CP 2968 on handy form, pages 2 and 3.

**Pictures and specifics
lab equipment**

Four-page, 2-color bulletin discusses several new lab instruments and accessories. Describes Bausch & Lomb refractometer designed to increase speed and accuracy of readings. States that instrument is accurate to 0.0002.

Other items covered are small autoclave, analytical balance, sensitive vacuum-pressure regulator, stable photometer, vacuum oven and rotary air pump. Includes prices and specifications.

Bul. 108, issued by Will Corp., Dept. CP, Rochester 3, N. Y. When inquiring specify CP 2969 on handy form, pages 2 and 3.

POWERS



Help Cut Costs—

For more accurate temperature readings and improved efficiency use POWERS Dial Thermometers. They're vapor pressure actuated. Have 4" dials with either rigid stem for use in pipe lines and tanks or flexible tubing type for conveniently showing the temperature at a remote point. For further information and prices phone or write our nearest office. Offices in 50 cities. Over 55 years of automatic temperature control.

WRITE FOR BULLETIN 355

THE POWERS REGULATOR CO.
2756 Greenview Ave., Chicago 14, Ill.
Gentlemen: Please send me Bulletin 355.

Name _____ Title _____

Firm Name _____

Address _____



When inquiring check CP 2970 on handy form, pgs. 2-3

STOP

variations in temperatures due to line voltage fluctuations

with the
NEW
TEMCOMETER

Temperature Controller and Indicator

This new Temcometer instrument combines in a single, compact unit an advanced type of input controller and an indicating pyrometer. Unlike other type controllers, the Temcometer automatically maintains even temperature regardless of fluctuations in line voltage. A sensitive panel-operated thermostatic switch can be set to regulate current input into the heating equipment anywhere from 5% to 100% time "on".

Originally designed as a built-in feature of Temco electric furnaces, this complete control unit is now made for use with other makes of furnaces and electric heating devices.

Made both with and without pyrometer for maximum loads ranging from 2.3 to 5.7 kw. Priced from \$30.00 to \$57.50.

Write for complete specifications and name of nearest distributor.

478-5 WEST LOCUST ST. DUBUQUE, IOWA

WESTON ELECTRIC MFG. CO.

When inquiring check CP 2971 on handy form, pgs. 2-3

R
EADABLE
ELIABLE
UGGED



WESTON All-Metal Thermometers

Rugged, all-metal construction . . . stainless steel stems . . . bold, readable dials . . . accuracy within 1% over the entire scale—all add up to the answer to industry's toughest temperature measurement requirements. Choose a dependable WESTON thermometer from a variety of types, stem lengths and scale ranges. Call your jobber, your WESTON representative, or write for Thermometer Bulletin . . . WESTON Electrical Instrument Corporation, 706 Frelinghuysen Avenue, Newark 5, New Jersey.

WESTON Instruments

When inquiring check CP 2972 on handy form, pgs. 2-3

Page 52

PROCESS INSTRUMENTATION

Flame-failure in oil burner prevented by phototube, amplifying system . . .

mounts directly on furnace wall of manually or automatically-ignited installations

Uses: To protect manually or automatically-ignited oil burner installations from flame failure. Also for manually-ignited air heaters, ovens and kilns.

Features: Entire control can be mounted directly on furnace wall, since housing is thermally insulated from high boiler-wall temperatures by special heat-resisting filters and heat-insulating fins and spacers.

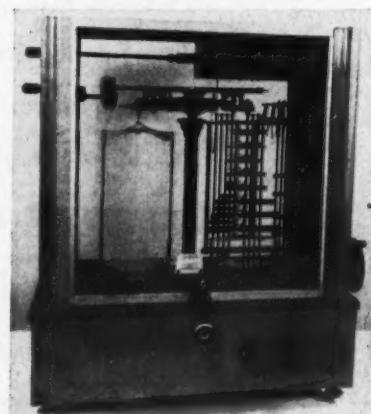
Relay cannot drop out from purely transitory flame disturbances. This is prevented by a hermetically sealed time-delay element. Other features: 180° visibility of pilot light indicating flame failure; and a cover switch which prevents unsafe operation of the control in case the cover is removed. Approved by all insurance laboratories.

Description: Unit consists of a phototube and amplifying system housed in compact, dust-tight aluminum case. Sensitivity, 15 ft-candles. Ambient temperature range, 32 to 150°F. Single-pole, double-throw relay contacts.

Source: Fireye Type F18T-2, made by Combustion Control Corporation, Dept. CP, 77 Broadway, Cambridge 42, Mass. . . or for more information check CP 2973 on handy form, pages 2 and 3.

Untrained operators make quick weighings with new analytical balance . . .

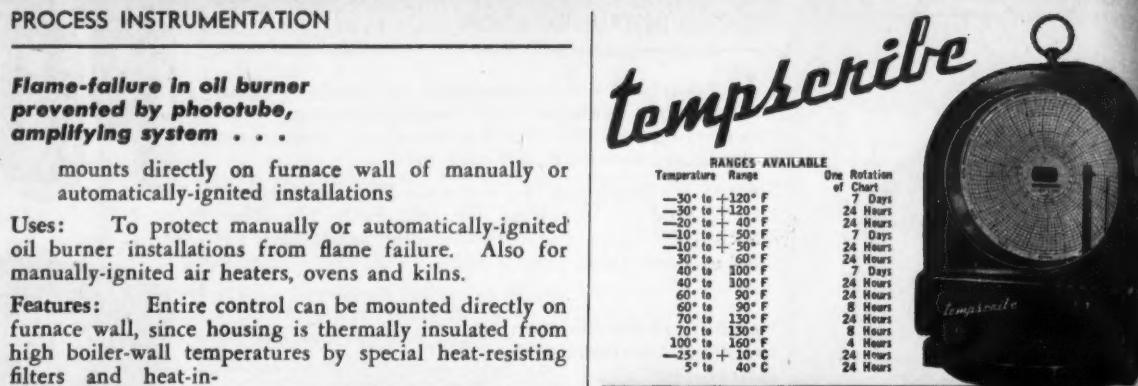
automatic deposition of weights enables inexperienced personnel to make weighings under 2 min. time



Balance permits quick weighings by inexperienced personnel

minutes.

Description: Reads directly to 100 grams without



RECORDING THERMOMETER

The TEMPSCRIBE self-registering Recording Thermometer meets a long-felt need for a moderately priced recorder for general purpose applications where a graphic record of temperature in surrounding air is required. The record—written on an easy-to-read chart, 4" in diameter, with graduation spaced uniformly over full range—is indispensable wherever knowledge is desired if temperature goes above or below any given point. TEMPSCRIBE is the only recorder made with pen and actuating element in door, which, when opened, permits a clear view of the complete chart, and easy chart replacement without danger of damaging pen arm or accidentally marking chart.

MOTOR OPERATION RECORDER ALSO AVAILABLE for recording any cycle carried out by interrupting an electric current, such as starting and stopping motor, fan, heater, etc. Write for Bulletin 715.

BACHARACH Industrial Instrument Co.,
7000 BENNETT ST., PITTSBURGH 8, PA.

When inquiring check CP 2974 on handy form, pgs. 2-3

Quality Sight Flow Indicators

are now
INEXPENSIVE



Flapper Type "Bull's Eye" Indicator
(Position of Flapper Indicates Flow Rate)

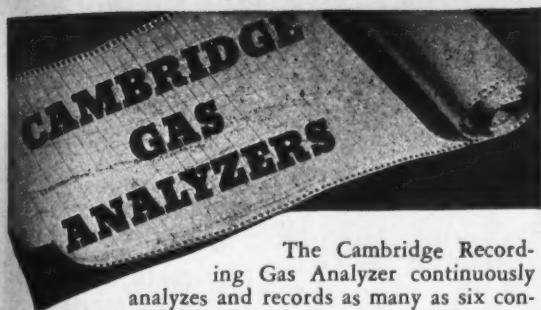
F&P "Bull's Eyes" have double windows, flanged covers (no threads to corrode and seize) and through-bolted construction. They are suitable for normal and corrosive service and for low and high pressures. A 1/2" screwed cast iron "Bull's Eye" costs \$10.00, as little as \$8.00 in larger quantities.

At your request we'll mail catalog 93 (which illustrates the complete line) and a price list.

FLOWRATOR • **FISCHER & PORTER CO.**
Dept. 9U-9E Hatboro, Pa.

When inquiring check CP 2975 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview



The Cambridge Recording Gas Analyzer continuously analyzes and records as many as six constituents of a gas. Eliminates intermittent, slow and expensive manual gas analysis. Accurate . . . Sensitive . . . Simple. No moving parts; utilizes thermal conductivity principle.

Makes possible substantial savings in the operation of kilns, production of inert gases, and in metallurgical, petroleum, and other chemical processes. Single- and Multi-point instruments are available for a wide variety of applications.

Send for literature mentioning application

CAMBRIDGE

INSTRUMENT COMPANY, INC.

3706 Grand Central Terminal, New York 17

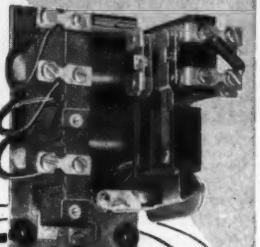
Pioneer Manufacturers of

PRECISION INSTRUMENTS

When inquiring check CP 2976 on handy form, pgs. 2-3

All Electric-Floatless LIQUID LEVEL CONTROLS

Positive! Dependable!
Economical! No floats!
No vacuum tubes! No
moving parts in liquid.
Unaffected by acids,
caustics, pressures or
temperatures.



WRITE FOR COMPLETE CATALOG

B/W CONTROLLER CORPORATION

2212 E. MAPLE ROAD BIRMINGHAM, MICH.

FIRST IN THE FLOATLESS CONTROL FIELD

When inquiring check CP 2977 on handy form, pgs. 2-3

SEPTEMBER, 1949

PROCESS INSTRUMENTATION

weights. Extra 100-gram weight is provided so that full 200-gram capacity is available.

Numerals appearing through plate indicate weights which will be deposited in pan. Deposition is automatic when beam is released. Readings are made across dial so that no addition need be performed, thus eliminating a major source of error. Sensitivity is 0.05 mg. at full load.

Source: 'Speedigram' analytical balance is produced by Voland & Sons, Inc., Dept. CP, New Rochelle, N. Y. . . . or for more information check CP 2978 on handy form, pages 2 and 3.

Soft, even illumination of gauge glasses . . .

standard small bulbs, plastic wedges provide diffused light without glare spots, blinding areas

Uses: To provide evenly-diffused light over entire length of gauge glass.

Features: Has no glare spots, no blinding areas.

Description:

Illuminators employ solid-wedge lighting principle, in combination with transparent plastic sheet. Standard small bulbs are employed. Illumination from single light source is reflected from angular surface and flows through transparent gauge glass.

Illuminators are available in standard and explosion-proof models for all gauge sizes. Supplied in either single or double section styles, as illustrated. Explosion-proof model is constructed in accordance with Underwriters' Laboratories Standard for electric lighting fixtures for Class 1, Group D hazardous locations. Units have aluminum brackets for mounting on gauge cover bolts.

Source: Produced by Jerguson Gage & Valve Co., Dept. CP, Somerville, Mass. . . . or for more information check CP 2979 on handy form, pages 2 and 3.

Safe, efficient metering of chlorine gas

Volumetric "Chlorinizer" is illustrated and discussed in 4-page, 2-color bulletin. Designed to accurately meter chlorine gas and deliver chlorine solution to point of use, the chlorinizer is said to incorporate many safety features which minimize hazards of handling chlorine.

Schematic drawings and cut-away photos demonstrate operating principles. States that only one connection, that for providing water supply, need be made when installing machine. Bul. 840-F2, issued by Builders-Providence, Inc., Dept. CP, Providence 1, R. I. When inquiring specify CP 2980 on handy form, pages 2 and 3.



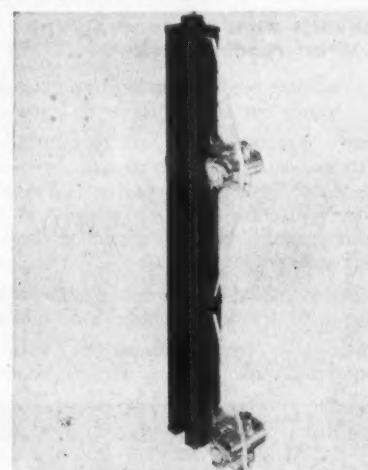
PRECISION HY-TEMP GAS BURNERS

PRECISION TIRRILL TYPE ADJUSTABLE BURNERS

Hy-Temp burners are the most powerful, flexible and durable burners for routine laboratory work. Operated on artificial gas of 530 BTU's per cu. ft., at a pressure of 6" of water, a Hy-temp burner developed a flame temperature of 3060°F.

The Tirrell Type burner is ideal for industrial and educational labs where efficiency and economy are important. Simply constructed, low in cost the Tirrell Type approaches efficiency of high temperature burners.

For more information about either type, write for Catalog 600-D2.



Gauge glass illuminator

Precision HYTEMP GAS BURNERS and PRECISION TIRRILL TYPE ADJUSTABLE BURNERS

Hy-temp burners are the most powerful, flexible and durable burners for routine laboratory work. They heat quickly and are adaptable to all jobs and gas service conditions, and effect cost-cutting economies in gas consumption. The Tirrell Type burner is ideal for industrial and educational labs where efficiency and economy are important. Simply constructed, low in cost the Tirrell Type approaches efficiency of high temperature burners.

For complete information about either type, write for Catalog Number 600-D2.

Precision Scientific Co.



Precision Scientific Company

3737 W. CORTLAND ST., CHICAGO 47, ILL. U.S.A.

Scientific Research & Production Control Apparatus

OFFICES IN CHICAGO, NEW YORK, PHILADELPHIA AND SAN FRANCISCO

When inquiring check CP 2981 on handy form, pgs. 2-3

GOOD WORK HORSE FOR SALE

YES, this "horse" works 24 hours a day, never gets sick, and never needs feeding. It's the rugged, dependable, accurate Taylor Self-Acting Temperature Controller. Simple in operation—and practically no maintenance required. Perfect where compressed air or electricity aren't available—on processes involving no extreme load changes. No auxiliary air supply required.

For jobs like: crude oil treaters, condenser cooler water in stills, oil field superheaters, wax coating machines, plating and rinsing tanks, bottle and can washers, mixing and cooling kettles, hot water tanks, diesel water jackets.

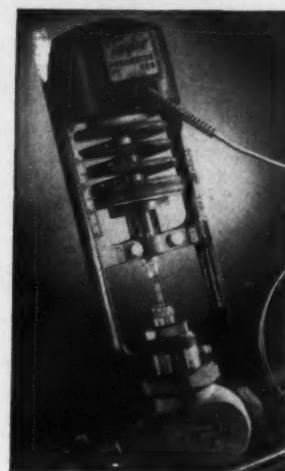
Double seated valves available up to 2"; single seated composition disc types up to 1". Numerous standard temperature ranges within 10° to 340°F., and semi-standard temperature ranges within 165° and 610°F.

The Taylor Self-Acting Temperature Controller is one more way Taylor can help keep quality up and costs down for you.

Ask your Taylor Engineer or write for Catalog 36-R. Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada. *Instruments for indicating, recording and controlling temperature, pressure, humidity, flow and liquid level.*

TAYLOR INSTRUMENTS MEAN "ACCURACY FIRST"

When inquiring check CP 2982 on handy form, pgs. 2-3



Measure
AIR
VELOCITIES FROM
10 to 600 Feet per Minute

with the
PRINCO

KATA
THERMOMETER
KIT

Accurate Inexpensive

For velocities of 600 feet per minute or less, use the PRINCO Kata Thermometer Kit. Simple, accurate, low cost. Functions by cooling action of air on thermometer bulb. Indication independent of air stream direction, even if direction is changing rapidly. Especially effective for velocities under 100 feet per minute. Write for literature and prices.

PRECISION
THERMOMETER
COMPANY
PRINCO

1404 Brandywine St., Philadelphia 30, Pa.

When inquiring check CP 2983 on handy form, pgs. 2-3

Page 54

PROCESS INSTRUMENTATION

Control valves are actuated by diaphragm motor . . .

Control valves, operated by diaphragm motor, are detailed in 32-page, 2-color bulletin. Many cut-away photos and detailed explanations point out construction details and operating principles. Available in 1/2" to 12" sizes. Shows features available in different models, including radiation fins, positioner, packless bellows, duplex and 3-way diaphragms, etc. Other models described are pilot-operated, have venturi throats, etc.

Dimension tables and ratings, shipping weights and cubical measurements, flow characteristics, piston sizes, etc., are contained in various tables and graphs. Bul. 700-1, issued by Belfield Valve Div., Minneapolis-Honeywell Regulator Co., Dept. CP, Philadelphia 44, Pa. When inquiring specify CP 2984 on handy form, pages 2 & 3.

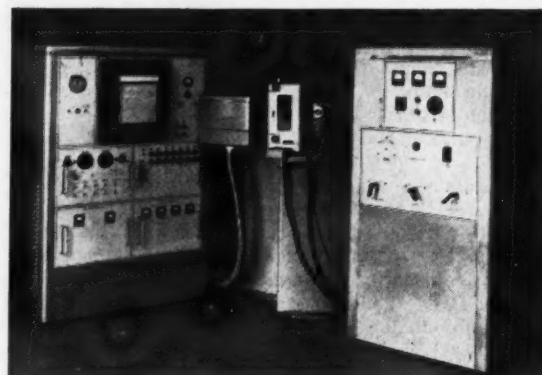
Converts standard spectrograph to direct-reading device . . .

adapter readily installed; another device is offered as source for either precise or trace analysis

Uses: Spectrograph Quantometer Adapter (SQA) converts standard spectrograph into direct-reading instrument. Spark-Arc Source Unit performs a dual purpose: it provides source for precision analysis of elements at higher concentrations, but, on the other hand, can be used for high-sensitivity trace analysis.

Features: The SQA is readily attached to standard spectrographs already in the field, at minimum cost.

Description: In addition to the basic circuits, the SQA contains all the auxiliary circuits found to be successful



Spectrograph (left) with dual-purpose source unit (right)
in manufacturer's original direct-reading instrument, the Quantometer.

Source: Made by Applied Research Laboratories, Dept. CP, 4336 San Fernando Rd., Glendale 4, Calif. . . . or for more information check CP 2985 on handy form, pages 2 and 3.

Precision indicators, recorders, controllers for use with AC, DC signals . . .

movements in AC meters are iron moving-vane type; d'Arsenal movements are used in DC meters

Uses: To provide accurate measurement, permanent records, or control functions when applied to electrical

FISHER Unitized GAS ANALYSIS APPARATUS

Offers Both

- ✓ Ease of Operation
- ✓ More Accurate Results

Widely adopted for a variety of gas analyses because of its versatility, accuracy of results and convenience in use.

More flexible assemblies.

No fragile one-piece manifold.

Convenient, three-way stopcocks.

Write for this
FREE Booklet

Headquarters for Laboratory Supplies

FISHER SCIENTIFIC CO.  **EIMER AND AMEND**
217 Forbes St., Pittsburgh 19, Pa.
2109 Locust St., St. Louis 3, Mo.
1000 University Ave., Seattle 2, Wash.
904 St. James Street, New York 14, N. Y.

When inquiring check CP 2986 on handy form, pgs. 2-3

MERCOID MERCURY SWITCHES

BUILT TO ENDURE



Universally Known for Their
Superior Quality and Workmanship

They are not affected by dust, dirt or corrosion and have many definite applications where open contacts are not suitable. Various types available. MERCOID is your guarantee of the best in mercury switches. Further information sent upon request.

LET MERCOID SOLVE YOUR CONTROL PROBLEMS



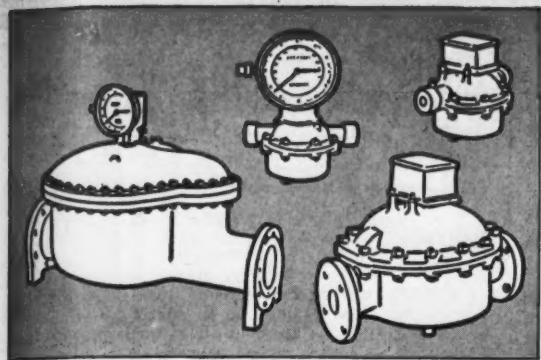
They rank first for convenience of adjustment—dependable service and long life.

They are designed for various applications requiring the control of pressure, temperature, liquid level and mechanical operation.

Complete Mercoid Catalog sent upon request.
THE MERCOID CORPORATION, 4201 BELMONT AVE., CHICAGO 41

When inquiring check CP 2987 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview



MEASURE by METER

when blending or processing liquids in your plant

Empire meters provide exact control over the quantities going into each batch, thus assuring precise uniformity in the finished product. They save time, the meter method being much quicker than stick gauging, weighing or waiting for batch tanks to fill. The meter system, too, eliminates spilling, evaporation loss and the fire hazard from open tanks. Empire meters reduce production costs, save money. Write for bulletin.

Pittsburgh Equitable Meter Division
ROCKWELL MANUFACTURING COMPANY
413 N. Lexington Ave. Pittsburgh 8, Pa.



When inquiring check CP 2988 on handy form, pgs. 2-3

MEASURE... INDICATE...
... INTEGRATE...
... CONTROL

FLOW...

OF PRACTICALLY
ALL LIQUIDS
with

HAYS
VERIFLOW-
Veritrol
METERS

WRITE FOR
BULLETIN 48-766

The HAYS CORPORATION
MICHIGAN CITY, INDIANA, U.S.A.

When inquiring check CP 2989 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

variables. Models are supplied for AC and for DC signals, may be calibrated in terms of any function of the electrical signals.

Features: Wide, mirrored scales with large numerals permit reading at some distance from instruments. Plug-in type construction completes all internal wiring when measuring and control units are plugged into their receptacles.

Description: Shock-proof, high precision movements with selected jewels are used in meters, which are enclosed in dust-proof housings.

Bul. AC-1 carries description of AC and DC measuring, indicating, signalling and recording instruments.

Source: Produced by Wheelco Instruments Co., Dept. CP, 847 W. Harrison St., Chicago 7, Ill. . . . or for more information check CP 2990 on handy form, pages 2 and 3.

Illuminated magnifier permits quick, accurate inspection of product samples . . .

available with 20-power or 40-power lenses, in battery or plug-in models

Uses: To examine finishes, raw materials, textiles, or samples of any other material which requires accurate inspection.

Features: Low-cost, compact instrument is available with 20-power or 40-power lenses.

Description: Rubber roller on shaft of knurled pinion raises or lowers vertical tube to permit focusing. Supplied as electric plug-in model or as battery model.

Source: Product of E. W. Pike & Co., Dept. CP, Elizabeth, N. J. . . . or for more information check CP 2991 on handy form, pages 2 and 3.



Flashlight-illuminated magnifier

Measure steam, gas, air with compact shunting meters

Two lines of shunting meters are discussed in 2 interesting, 2-color bulletins. Model SMKS, designed to render accurate accounting of quantity flow in lines from 1" to 12" diam., is covered in 16 pages of text, photos, and diagrams. Model SMDH, intended for use in 1" and 1½" lines, is pictured, specified and described in 8 pages. Both models are stated to have accuracy of plus-or-minus 2% from 10% to 150% of rated capacity. Equipped with totalizing counters, models are supplied with magnetic couplings between rotor and counter, thus require no stuffing box or shaft packing. Calibrated in lbs. of steam or cu. ft. of air or gas.

Buls. 400-F1 and 400-F2, issued by Builders-Providence, Inc., Dept. CP, Providence 1, R. I. When inquiring specify CP 2992 on handy form, pages 2 and 3.

IT'S GOODBYE
Forever

TO THESE TROUBLEMAKERS

IN PLANTS EQUIPPED WITH
CASH STANDARD TYPE 1000 STREAMLINED REDUCING VALVES

The Reasons Why
IT HAPPENS ARE TOLD
BY USERS AS FOLLOWS . . .

Check what the users say against the Benefit Points Below

• A Chemical manufacturer says—

"The CASH STANDARD Type '1000' valves which we have in service have fulfilled the conditions checked . . . (ACCURATE PRESSURE CONTROL UNDER TOUGHEST WORKING CONDITIONS), (TROUBLE FREE SERVICE), (TIGHT CLOSURE) better than any other steam pressure reducing valves that we have used."

• A Metal Products company says—

"We have had a number of your CASH STANDARD Type '1000' valves in operation in our plant for a number of years. These valves have proved to be satisfactory in every respect. We particularly like this type of valve because it is SIMPLE TO INSTALL, REQUIRES A MINIMUM OF MAINTENANCE, and gives CONTINUOUS and UNIFORM PRESSURE CONTROL."

• A Plant Engineer says—

"We find that the CASH STANDARD Type '1000' streamlined valves are best suited for our various applications of compression molding because of their VERY WIDE RANGE OF ACCURATE PRESSURE CONTROL. The simplicity of construction of these valves has kept the MAINTENANCE COSTS VERY LOW which of course means a SAVING IN COST OF OPERATION, and SPEEDIER PRODUCTION."

**WRITE FOR
BULLETIN
962**

THESE ARE THE BENEFITS YOU GET BECAUSE OF ITS ASPIRATOR AND STREAMLINED FLOW

Maximum Capacity When Needed Most Accurate Pressure Control
Under Toughest Working Conditions Trouble-Free Service Smooth Operation Tight Closure
Accurate Regulation Speedier Production Results Elimination of Failures Constant Delivery Pressure
Cost Saving Operation No Spillage Practically Zero in Maintenance Costs

**CASH STANDARD
CONTROLS . . .
VALVES**

**A. W. CASH COMPANY
DECATUR, ILLINOIS**

When inquiring check CP 2993 on handy form, pgs. 2-3

these ELECTRONIC stainless steel FINGERS

Step Up Production
Reduce Waste and Loss

BY MAINTAINING
Exact liquid levels in
containers.

THUS PREVENTING

Overflow or draining of
tanks or boilers: Air
binding process pumps:
Burning out boiler tubes:
or Processing pots: Water
contamination, etc.



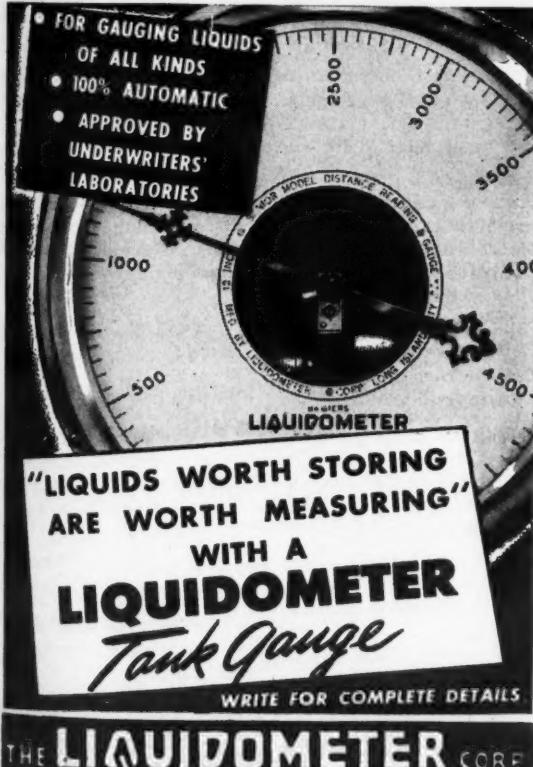
Faratron Liquid Level Controls

Sanitary — Dependable — Accurate
Just two polished stainless steel rods
in the vat, tank, boiler, processing
kettle, freezer, pasteurizer etc., to
control signals or operate valves at any
pre-set level. Constantly on duty—
need no servicing—and are easy to
install.
If you have any liquids—hot or cold—with
or without foam—in any type of container
to control, you should have our Bulletin 481.
Write for it today.

TO
PUMP
MOTORS—
MOTORIZED
VALVES—
SIGNAL
BELLS or
LIGHTS—
Etc.

Lumenite Electronic Company
407 S. Dearborn Street Chicago 5, Ill.

When inquiring check CP 3000 on handy form, pgs. 2-3



When inquiring check CP 3001 on handy form, pgs. 2-3

SEPTEMBER, 1949

PROCESS INSTRUMENTATION

permanent, non-fading color standards. Reagent is added to sample and color which develops is compared to series of color standards brought into position by rotating disc. Sample is viewed through 26 mm depth, and a prism brings the standards and sample into juxtaposition.

Standards are available throughout range from 0.2 to 13.6 pH, and also available for chlorine residual determination. Colorimetric comparator is described in Technical Bulletin 16-C.

Source: Product of Wallace & Tiernan, Instrument Dept., Dept. CP, 1 Main St., Belleville, N. J. . . or for more information check CP 3002 on handy form, pages 2 and 3.

Obtain accurate determinations of photomicrography exposure time . . .

3 models are available with sensitivities of 2, 0.02 and 0.001 foot-candle for full-scale deflection

Uses: Give photoelectric determination of exposure time for photomicrography, metallography, with black and white as well as color micrographs.

Features: Model 200-M operates with self-generating photocell, needs no power source. Has sensitivity of 2 ft.-candles for full scale, or 0.02 foot-candle per division.

Models 500-M and 512-M, have respectively, sensitivities 100 and 2000 times that of Model 200-M. These meters provide accurate timing of exposures of several hours if required.

Description: Model 200-M has 2-range switch which permits operation at full sensitivity or at 1/10 sensitivity. Model 500-M operates from AC power line. Four ranges are provided, each range decreasing the sensitivity in ratio of 10:1. Thus the instrument is suited not only for focal plane readings where the light is relatively weak, but also for measurements at the microscope exit where stronger values are to be measured.

Model 512-M has sensitivity of an order which permits focal plane measurements at high magnifications and where readings are to be taken on small areas of the image. Equipped with dry cells, it is reported that battery drain is so low that their life is almost equal to their shelf life.

Accessories are available which extend further the useful applications of the sensitive photometers. Circular 810 and Technical Information Bulletin 812 carry detailed descriptions and instructions for use.

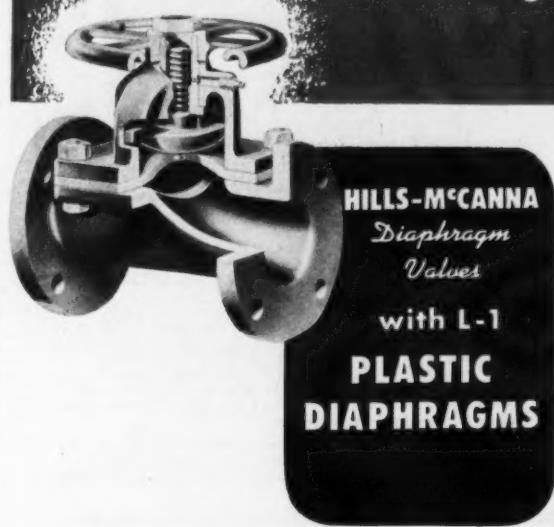
Source: Produced by Photovolt Corp., Dept. CP, 95 Madison Ave., New York 16, N. Y. . . or for more information check CP 3003 on handy form, pages 2 & 3.

Precision limit switch locks in any of 870 positions

Versatile precision limit switch is described in 2-page data sheet. Tells of accuracy of repeat performance, ease of wiring, convenience of mounting, and effectiveness of sealing. Several schematic diagrams show dimensions, describe how roller arm may be set at any of 870 positions and how operating head is adjustable to any of 4 positions.

Circuit arrangement is pictured. Temporary Data Sheet 51, issued by Micro Switch, Dept. CP, Freeport, Ill. When inquiring specify CP 3004 on handy form, pages 2 & 3.

Now you can valve
66° Bé Sulphuric Acid
without leakage, dripping
or sticking



NEWLY developed plastic diaphragms for Hills-McCanna Diaphragm Valves now make it possible to handle 66° Bé sulphuric acid without leaking, dripping or sticking. The combination of the proved Saunders Patent pinch clamp principle with the new plastic diaphragm puts an end to these troubles so common in valving 66° Bé sulphuric.

Hills-McCanna Diaphragm Valves for handling 66° Bé sulphuric are suitable for temperatures up to 125° F., pressures up to 100 psi. To get complete information, price and delivery data, write today. Specify valve sizes (1/2" to 4" incl.) and body material (cast iron, cast steel, Durimet or glass lined) desired. Full explanation of the Saunders Patent principle and specifications for Hills-McCanna valves for other services are given in Catalog V-48, available on request. HILLS-MCCANNA COMPANY, 2370 W. Nelson Street, Chicago 18, Illinois.

HILLS-MCCANNA
diaphragm valves
saunders patent

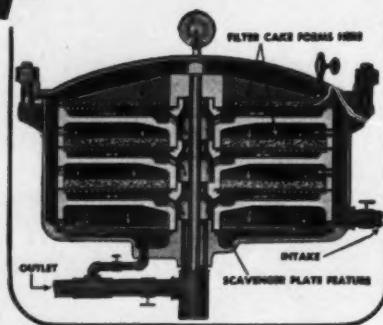
Proportioning Pumps
Force-Feed Lubricators • Magnesium Alloy Castings

When inquiring check CP 3005 on handy form, pgs. 2-3

Page 57

why

Horizontal Filter Plates?



because—with horizontal plates, filter aids are permitted to flow in a natural direction, with gravity, and are deposited in an even cake of uniform thickness.

because—the filter cake rests flat on the supporting plate without tensile or distortive strain, will not crack, slip, or break under pressure, assuring even filtration.

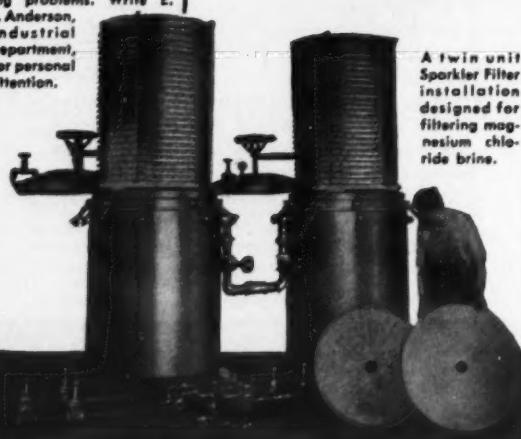
because—any filter paper, cloth, screens, or filter media can be used. Strength in the cake itself is not important, pressure simply presses the cake more firmly on the supporting horizontal plate.

because—horizontal plates are bolted together in a unit that is easily removed for cleaning. An extra unit assembly of horizontal plates can be immediately placed in the filter and the filtering process continued with slight interruption.

This is only part of the story—other exclusive features like the patented scavenger plate that makes possible the recovery of the last of a batch run and other operating advantages are reasons why Sparkler Horizontal Plate Filters are so widely used in the chemical processing industry.

SPARKLER horizontal plate FILTERS

Our filtration engineers are ready to cooperate in solving any of your filtering problems. Write E. S. Anderson, Industrial Department, for personal attention.

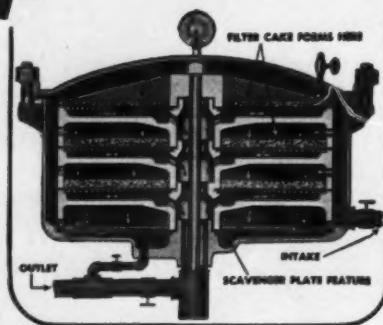


SPARKLER Manufacturing Co.
220 Lake Street, Mundelein, Ill.

When inquiring check CP 3006 on handy form, pgs. 2-3

Page 58

Horizontal Filter Plates?



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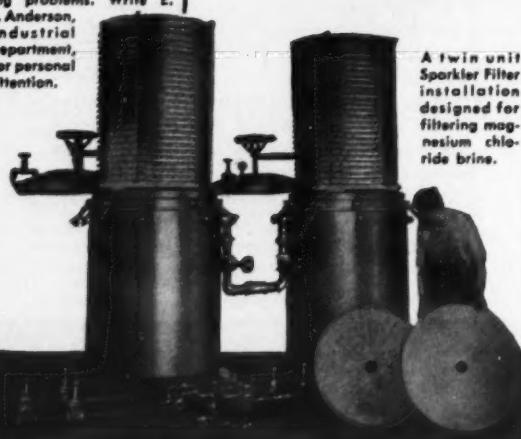
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horizontal plate FILTERS

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220 Lake Street, Mundelein, Ill.

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Page 58

Briefs . . . from contemporary publications

Here's a quick look at interesting articles appearing in other publications,
... as selected by Technical Editor, H. McCormack

An Indirect Aroclor heater for unit chemical operations

General requirements for a suitable heat exchange medium, and how these requirements are met by Aroclor, are discussed in a 4-page article.

Physical properties of Aroclor are tabulated. Three tables cover the stability of Aroclor 1248 under diverse conditions.

Diagrams show construction of an Aroclor 1248 heat exchanger, with necessary auxiliary equipment. Resistance of various materials of construction to Aroclor 1248 is shown in a table. Piping detail is tabulated as well as safety and control equipment. Seven tables, 3 figures. ("Industrial & Engineering Chemistry", July, 1949, page 1341)

Liquefied-gas aerosols: at low and moderate pressures

Problems involved in producing an insecticidal aerosol and accompanying light-weight container are analyzed in 4-page article. Container is described and sketched, with valve.

Required characteristics of propellant are discussed, and various combinations are considered. Their properties are tabulated. Active ingredients are examined as to stability, action on container, and effectiveness as insecticides. Illustrated with 3 figures, 1 flow sheet and 2 tables. ("Industrial & Engineering Chemistry", July, 1949, page 1523)

Insecticides protect food supply

Opinions concerning the protection of food supply by insecticides were expressed at recent meeting of a branch of American Association of Economic Entomologists. These opinions are compiled in a 2-page article.

Accomplishments are cited as to increased yields of certain crops when insect controls were applied. Need for education, at all levels, in selection and use of agricultural chemicals, is stressed and comments are made as to doubts arising in consumers' minds on deviations from this policy.

Attention is called to the desirability of ascertaining more about known pesticides rather than attempting to develop new ones. ("Agricultural Chemicals", July, 1949, page 30)

Ethylene glycol produced via ethylene chlorohydrin

Recent expansion in US production of ethylene glycol through initial production of ethylene chlorohydrin from ethylene, and then a hydrolysis to desired product, is presented in 5-page article.

Details of process are presented and discussed. Comments

are made regarding modified procedures which have not improved the process. Process, as operated in Germany, is reviewed.

Materials and power consumption per ton ethylene oxide are tabulated. Two tables, 2 figures. ("Petroleum Refiner", July, 1949, page 120)

Continuous contact coking

An experimental plant adapted to treatment of heavy residual oils and tars originating in petroleum processing plants is described in a 7-page article. Products are coke, with low volatile and high mechanical strength, also gas and light oils.

Advantages occurring from such a process are pointed out. Construction of unit is described. Operating conditions are stated. Quantity and quality of products from various raw material sources are tabulated and discussed. Seven tables, 4 figures and 1 flow sheet. ("Petroleum Processing", July, 1949, page 769)

Cold rubber: its preparation, properties and applications

Development of the so called "cold rubber" process is described in 5-page article. Technical reasons for superiority of synthetic rubber produced by polymerization at low temperatures are discussed. Process is described.

Refrigeration requirements of the process are tabulated. Physical and chemical properties of rubbers from two processes are compared. Present and future applications of "cold rubber" are commented on. Includes 1 table, 1 tabulation, 5 figures. ("Refrigeration Engineering", July, 1949, page 641)

Continuous production of superphosphate

Customary batch processes for production of superphosphates are reviewed. Describes and discusses a recently introduced process for superphosphate production in which the flow of materials is continuous. Comments on advantages of new process.

Seven pages, 5 photos, 1 table, 1 flowsheet. Extended bibliography. ("Industrial & Engineering Chemistry", July, 1949, page 1306)

Minimum thickness of cylindrical steel tanks, pressure vessels

Various factors to consider when choosing plate thickness for constructing cylindrical steel tanks and pressure vessels are discussed in 3-page article.

Exceptions to API-ASME unfired pressure vessel code limits are mentioned. Minimum plate thicknesses are

graphed for bottom course, cylindrical storage tanks, for vertical vessels 50 to 200 ft high exposed to wind velocity of 100 mi/hr, and for cylindrical vertical vessels subject to axial compression. Includes 5 graphs. ("Petroleum Refiner", July, 1949, page 136)

Heat transfer maintained by cooling water treatment

Factors which cause reduction in efficiency of heat exchangers, operating with water as the cooling media, and after continued operation, are analyzed.

Graphs show dirt resistance to heat transfer, with untreated and with treated water, over a 50-day period. Analysis of untreated cooling water is given.

Various methods were used for water treatment. Results are stated. Three-pages, 4 tables, 6 figures. ("Industrial & Engineering Chemistry", July, 1949, page 1409)

Waste (water) treatment methods accelerated

Instances where techniques developed for high-rate clarification and softening of water have been applied to treatment of plant waste waters are given in 4-page article.

Examples include a large oil refinery, a paper mill, and a domestic sewage plant. Advantages claimed for changed techniques include conservation of space, shorter retention time, reduction of B. O. D. in treated waters. Reduced size of treating plant means reduced initial cost. ("Chemical Engineering Progress", July, 1949, page 417)

Material handling

Eleven illustrations showing the processing of fertilizer materials are used to emphasize reduced labor costs and increased production resulting from mechanical handling of bulk materials. Six pages.

Attention is called to fact that such savings cannot be realized in some plants. Photos cover wide range of material handling. Methods applicable for any processing plant having similar handling problems are included. ("Agricultural Chemicals", July, 1949, page 32)

Explore subsoil before designing foundations

Article emphasizes importance of knowledge of what lies below the surface when designing foundations for any structure.

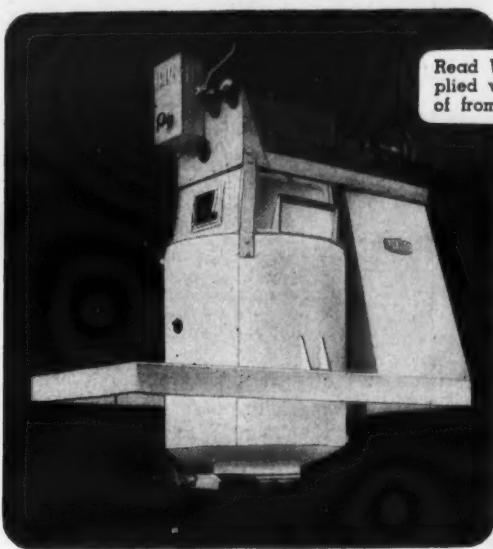
Attention is called to various kinds of subsoil, each with its own characteristics. Cites several examples where lack of knowledge brought disaster. 3 pages, 3 photos. ("Industry and Power", June, 1949, page 77)

Specialized instrument section in chemical company

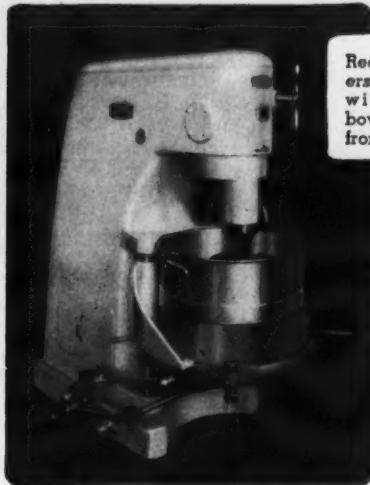
Typical day-by-day activities of a group of applied physicists, organized for the purpose of supplying physical measurements required in chemical research or plant operation, are presented in 4-page article.

Several special instruments found useful in chemical and mechanical engineering problems are described, with their functions. Ten figures. ("Chemical Engineering Progress", July, 1949, page 471)

Read the Facts about READ Chemical Equipment



Read Vertical Mixing Tanks are supplied with stationary bowl capacities of from 100 to 1,000 gallons.



Read Vertical Mixers are supplied with removable bowl capacities of from 12 to 400 qts.

PLANETARY ACTION

... means thorough mixing without "dead spots" or "columns" of unmixed material

READ Vertical Mixing System Advantages:

- Read Vertical Mixing Tanks and Vertical Mixers are both planetary action machines, providing controlled stirring or mixing action through the whole batch—not violent action in a small area—thus a thorough mix without "dead spots" or building up columns of unmixed material.
- Beater revolves in planetary motion. Single, multiple or variable speeds.
- Vertical Mixers particularly advantageous in processing of dry materials, creams, emulsions, and light plastic masses. Vertical Mixing Tanks for larger, heavier batches. Latter have liquid-tight discharge gate in bottom of tank.
- Units may be supplied with stainless steel bowls and beaters.
- Vertical Mixers will accommodate several sizes of removable bowls; thus one machine can be used for large and small batches by changing bowls and beaters; water jackets, bowl scrapers, splash hoods, and fume hoods available, spring lock holds beater to driving head—thus no thumb screws or wing nuts.
- Vertical Mixing Tanks available with various types of mountings and arrangements for admitting materials for processing, and high-pressure jackets.

BRING YOUR MIXING PROBLEMS TO READ

MAKERS OF **READCO** CHEMICAL EQUIPMENT

WHAT'S YOUR NEED?
CALL ON...

Write for literature on Read
Vertical Mixing Tanks and
Vertical Mixers.

READ

MACHINERY DIVISION

of THE STANDARD STOKER COMPANY, INC.
YORK, PENNSYLVANIA

NORTON Developing Pure Oxide Refractories

THE REFRACTORIES industry is under constant demand from users for refractories of better quality to withstand higher temperatures and more severe operating conditions. Development of new industries, e.g., synthetic gasoline, atomic power, and jet propulsion, and the use of low-cost oxygen will require refractories superior to those now being supplied. To meet these demands, a group of special refractories, termed the "pure oxides," have been developed. Although made of the same general types of refractory materials that have been in use for years, these "pure oxide" refractories have superior qualities, in great part due to their freedom from fluxes. The refractory oxides of interest are, in order of increasing cost per unit volume, alumina, magnesia, zirconia, beryllia, and thoria.

These oxides have distinctive properties which, if considered carefully before designing refractory structures, can solve nearly all high temperature furnace problems. Alumina (fusion point—2000° C. to 2045° C.) is very stable in the presence of both oxidizing and highly reducing atmospheres and "at 1700° C. to 1800° C. is resistant to all gases except fluorine." Magnesia, a basic refractory, ordinarily stable in oxidizing atmospheres, has a high fusion point (2800° C.) but is easily reducible at high temperatures and has been reported to volatilize even in oxidizing atmospheres above 2300° C. Zirconia (fusion point—2715° C.) is stable in oxidizing and moderately reducing atmospheres, has a very low thermal conductivity considering its density of 6.27, but in the pure state inverts in crystalline structure causing a disastrous volume change. Zirconia, however, can be stabilized in a cubic form by the addition of small percentages of lime or magnesia with slight loss in refractoriness. Beryllia (fusion point—2520° C.) has high thermal conductivity (reported to be comparable to metals) thus good thermal shock resistance, and is resistant to highly reducing atmospheres. However, beryllia volatilizes in the presence of water vapor above 1650° C., and is expensive. Thoria has the highest fusion point (3050° C.) of the oxides, but has the very high density of 9.6, poor thermal shock resistance, is radioactive, and expensive.

For light refractories, such as crucibles and tubes, all of these oxides have been commercially developed. For heavy refractory ware, only the three pure oxides reasonable in cost have been used at present: alumina, magnesia, and zirconia.

For a complete folder on Pure Oxide Refractories write for Bulletin POR-1

NORTON COMPANY
WORCESTER 6, MASSACHUSETTS

When inquiring check CP 3008 on handy form, pgs. 2-3

Radioisotopes Produced by Cyclotrons Are Being Made Available

Supplement reactor-produced isotopes; greatly extend areas of possible research

CYCLOTRON-PRODUCED radioisotopes will be made available to research men in the United States under a program announced by the Atomic Energy Commission. These isotopes are produced by bombarding material with high-speed, charged sub-atomic particles, as compared with isotopes produced by bombardment with neutrons in the nuclear reactor.

Program will augment present distribution of reactor-produced radioisotopes. Program is strongly recommended by the National Research Council, which states that "there are significant numbers of radioisotopes which either cannot be produced by the uranium chain-reacting pile or cannot be so prepared as to meet certain requirements that are obligatory for many scientific applications".

Only those cyclotron-produced radioisotopes that have half-lives of more than 30 days will be distributed initially. Included in these new research tools are 43-day beryllium 7, 3-year sodium 22, 44-day iron 59, 4-year iron 55, 250-day zinc 65, 90-day arsenic 63 and 56-day iodine 125. Other cyclotron-produced isotopes may be added later.

Carbide & Carbon Chemicals Corporation, operator of Oak Ridge National Laboratory for the Commission, will be authorized to purchase cyclotron time from various institutions.

Many researchers wanting cyclotron-produced isotopes are already users of reactor-produced isotopes. For example, users of 14-hour sodium 24 (reactor-produced) also need 3-year sodium 22 (cyclotron-produced) to extend studies over much longer periods.

Cyclotron-produced radioisotopes are considerably more expensive than reactor-produced isotopes. The Commission will subsidize the program to price these radioisotopes at a level which will make them available to most research institutions. These isotopes, like the reactor-produced isotopes, will be distributed free of all production charges for cancer research.

Processing of irradiated targets will be carried out by Oak Ridge National Laboratory in facilities already provided for handling the reactor-produced isotopes. The Isotopes Division will carry out the allocation function. This inclusion of distribution into present distribution channels will simplify voluminous paper work involved in screening of formal requests, shipment problems, legal arrangements, etc.

Distribution of materials will be limited to institutions and organizations within the United States and its territories and possessions. (Atomic Energy Commission, Washington 25, D. C.)

United States Buys \$500,000 Worth of Australian Eucalyptus Oil

One of the oldest secondary industries in the Commonwealth started business in 1852

DEMAND for eucalyptus oil has grown since important research work was carried out by the Technological Museum of Sidney, New South Wales, Australia. During 1946-1947, the United States bought more than \$500,000 worth of eucalyptus oil from Australia.

The oldest company engaged in the production of oil for medicinal purposes is J. Bosisto & Co. Pty. Ltd., of Erin St., Richmond, Victoria. This company began business in 1852 when it first introduced the oil to commerce. It now has a large refinery and bottling plant at Richmond. Silver leaf, sometimes known as the blue gum, is one of the most valuable producers of the eucalyptus species. At Inglewood, 27 miles from Bendigo, Victoria, the Bosisto

organization has erected a distillation plant. Leaves from a growing area of 70,000 acres constitute a perpetual source of supply, as after being cut they grow again in periods of 12 months to two years.

Local contractors cut the shrubs with a special hook, curved and double-bladed.

Complicated plant and machinery are not used in the distillation process. The main units are the vats, into which steam is pumped from a boiler. The steam carrying the oil from the leaves is then let out to a condensing unit. Cold water, pumped from a near-by dam, assists in the distillation, and the oil is found floating on the top of the released water.

In most plants it has been the practice in the industry to skim the oil off the liquid, but engineers at the Bosisto plant have devised their own method of separating the oil from the water. Taps, located at two different levels in the receiving receptacle, run the top layer off in one direction, and the water off in the opposite direction. The oil forms the higher layer of the solution so the oil tap is on top.

When the gum leaves have been placed in the vats, the tops are closed down and all apertures in the vicinity of the covers and also the pipe inlets and outlets, are plastered with clay, to prevent escape of the steam that is carried in from the boiler.

After being "cooked", the leaves are lifted out of the vat in a bale by means of a hand-operated crane. They are used to fire the boiler, providing economies in fuel.

The company's Inglewood plant produces about 1800 pounds of oil each week. Other plants at Wedderburn and Glenalbyn deliver 200 pounds to the refinery and bottling depot at Richmond.

The plant on which the leaf grows is allowed to reach a height of about three feet, at which time it is cut down to the ground. It grows again vigorously, with the best oil-bearing leaves in the lower branches. It needs no cultivation or attention.

The eucalyptus oils are used for solvents, disinfectants, paint removers, mineral separation, perfumes, medicinal, dental and pharmaceutical products, fruit sprays, and prevention of scale in boilers and auto radiators. (Australian News & Information Bureau—636 Fifth Ave., New York 20, N. Y.)

Prefabrication simplifies piping assembly . . .

erection or maintenance force ordinarily should only be called on to assemble piping

An erection or maintenance force should not be expected to design and fabricate economically, under adverse field conditions, piping comparable with that of the modern pipe fabricating shop. Shop fabrication permits use of special machinery, which is impractical for field service.

Mechanics continuously working on welding and other complex operations of fabricated piping maintains a high proficiency. Shop testing reveals hidden flaws in welds and threaded joints which would not otherwise be detected until installed. This avoids removal for replacement or repair which may result in expensive delay.

Further information on prefabrication of pipe and piping systems may be had from Crane Co., Dept. CP, 836 S. Michigan Avenue, Chicago, Illinois . . . or for more information check CP 3009 on handy form, pages 2 and 3.

Phase contrast microscopy provides clearer images

Theory of phase contrast microscopy, practical applications, and photographs demonstrating comparative results of bright field and phase contrast techniques are set forth in 16-page bulletin.

Shows clearly that phase contrast illumination makes all microscope images clearer. Shows unstained bacteria, feldspar cleavages under both phase contrast and bright field illumination, etc.

Tells of many accessories for converting existing equipment to phase contrast illumination. Cat. D-104, issued by Bausch & Lomb Optical Co., Dept. CP, Rochester 2, N. Y. When inquiring specify CP 3010 on handy form, pages 2 and 3.

ACE HARD RUBBER and PLASTICS

STOP CORROSION AT ALL VITAL SPOTS

For instance . . . Ace Pipe and Fittings for Every Need!

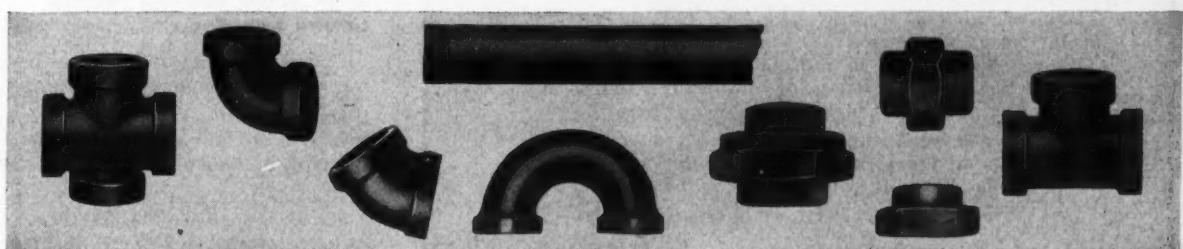
Here's the most complete line of hard rubber and plastics pipe and fittings you'll find anywhere. Ace hard rubber resists all alkalies, metallic salts of inorganic acids, hydrochloric acid any strength, nitric acid up to 16° Baume, phosphoric acid to 75%, sulphuric acid up to 50° Baume, most other inorganic acids any strength, and countless other corrosive solutions and fumes. Other Ace plastics such as Saran and Parian (polyethylene) extend this range of applications still further. Catalog 300-7 and Ace plastics bulletins tell you where Ace-clad and Ace molded equipment saves for you—send for them today.



SARAN and PARIAN: Tough, exceptionally resistant pipe and fittings of Saran and Parian (polyethylene) plastics. Sizes $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$ and 2". Complete variety of fittings. Standard pipe threads. Also Saran tubing and tube fittings from $\frac{1}{8}$ to $\frac{3}{4}$ ".



HARD RUBBER LINED STEEL: Completely protected over flanges as shown in cutaway view above. Pipe available in sizes from $1\frac{1}{2}$ " up. Cast iron and steel flanged fittings $1\frac{1}{2}$ " up.



SOLID HARD RUBBER: Standard pipe and threaded fittings from $\frac{1}{4}$ to 4"; larger sizes to 8" on special order. Flanged fittings also available from $1\frac{1}{2}$ to 6".



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AMERICAN HARD RUBBER COMPANY

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O.D.S. DIAPHRAGM SLURRY PUMP

This is the diaphragm slurry pump that is handling effectively such products as: aluminum hydrate, magnesium chloride, sodium tungstate, sodium sulphate, various metallurgical slurries; sugar, salt, organic and inorganic products; hydrochloric, sulphuric, phosphoric acids; cotton linters; and antibiotic slurries.

The diaphragm is actuated in timed pulses by either air or gas pressure, by vacuum, or by a combination of both. It is designed to pump against heads up to 200 feet and to charge either by gravity or against lifts up to 15 feet.

Low maintenance features include: (1) no mechanical linkage to the diaphragm; (2) uniform force on diaphragm; (3) no holes punched in the diaphragm; (4) ample clearance in ball valves for passage of solid matter; (5) no motor, stuffing box, packing or high speed moving parts.

With several sizes from 1 to 3 inches, you can find in a single unit or battery the capacity required for your slurry pumping job. Write for Bulletin 309.

Shipment from Eastern or Western Factory!

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When inquiring check CP 3012 on handy form, pgs. 2-3

IDEAS

All necessary instruments found in radiochemical laboratory . . .

includes units for making quantitative measurements and for precautionary monitoring of working area

A complete radiochemical laboratory containing quantitative and health-monitoring instruments, plus the necessary accessories, has been announced. For use on all normal measurements, as well as with many unusual experiments, the equipment consists of:



Fully equipped radiochemical laboratory

Higinbotham-type Scaler
Thin-wall Jacketed Counter
Thin-wall Dipping Counter
Miniature Thin-wall Counter
Calibrated Aluminum
Absorber Set
Victoreen Minometer and
1 Chamber
Victoreen Chamber
Scaler Type Nucleometer
with External Sample
Counter

Aluminum Sample Pans
Internal Sample Counter
Beckman Radiation Meter
AC Mica-window Counter
Survey Meter
Stainless Steel Safety Tray
Micro-chemical Glassware
Iron Bricks
Sample Tongs
Sample Spinner
Dust-tight Safety Chamber

Source: Laboratory and instruments are products of Radiation Counter Laboratories, Inc., Dept. CP, 1844 W. 21st St., Chicago 8, Ill. . . or for more information check CP 3013 on handy form, pages 2 and 3.

Machines for applying Geon latex paper coatings require careful selection . . .

air knife type coater said to be most suitable of all; can apply any weight of coating

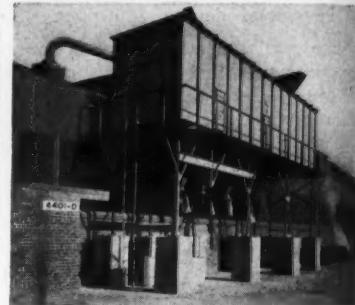
Geon latex coatings have such wide applications in paper and boxboard manufacture that the selection of machines for applying these materials is quite important.

The blanket type is a quite suitable knife coater. It employs a solid rubber blanket as a carrier for the web and backing for the knife. By using a rubber blanket, low strength materials can be coated, since the tension is removed from the web and transferred to the blanket. The tension being applied to the rubber blanket results in uniform pressure on the web. This factor permits more uniform coating than would generally be obtained on other types of coaters. Since the rubber blanket exerts a constant pressure on the web against the knife, the coating will be applied uniformly regardless of varying caliper of the web. Geon latices can be handled on knife coaters if the viscosity is increased to approximately 1200 centipoises.

Spray coating equipment can also be used to apply these latices. A De Vilbiss hand spray has been used successfully in the Service Development Laboratory of the B. F. Goodrich Chemical Company.

COLLECT DOLLARS with SLY DUST FILTERS

DUST IS DOLLARS



A typical Sly Dust Filter—heart of the complete dust control system.

In many industries, such as cement and other rock products, milling of grain, manufacture of soap powders and cosmetics, the finer particles of the product are valuable. By collecting this dust Sly Filters are saving thousands of dollars.

In other industries, even though the dust has no value, collection pays handsomely by providing cleaner plants, cleaner products, and better workmanship.

Inexpensive, Sly Filters draw the dust-laden air from the source and remove all dust by filtration through cloth. They offer many advantages in saving of space, power, and by economies effected in operation. They soon repay their cost and add to net income.

Helpful Booklet for You

This 24-page booklet tells about dust control and what it can mean to you. It is called Bulletin 98. Send for a copy and tell us about your dust problem so that we can write you fully.



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on handy form, pgs. 2-3

A Thrifty Mixer



FOR CHEMICALS, FOODS and OTHER LIQUID MATERIALS

You'll save time and money by using Eastern mixers in your laboratory and production processes. Whether used in experimental or run-of-the-mill applications, Eastern mixers blend and mix economically over long periods of service. Every Eastern mixer is factory pre-tested for precision and performance. All are guaranteed by the manufacturer.



MODEL H-1
Heavy duty
1/4 H.P.
High speed—
1725 R.P.M.
30" shaft
dual 4" low
pitch props.

Available in models from 1/20 to 5 H.P. Motors are sleeve-bearing; totally or semi-enclosed or explosion-proof. Screw clamp or bracket mounting. Stainless steel shaft; nickel plated bronze props. Easy to clean, dependable and maintenance-free.

WRITE FOR FULL DETAILS

**Eastern
INDUSTRIES, INC.**

Dept. 12-R
611 Regent St.
East Norwalk, Conn.

When inquiring check CP 3015
on handy form, pgs. 2-3

SEPTEMBER, 1949

IDEAS

A third method of application of latices to paper and boxboard is roller coating. Two coaters used successfully are the doctor kiss coater and the reverse roll coater. The former is a combination of knife and roll coaters. The coating is applied by a roll which is followed by a knife that meters and smooths the coating. This coater has found its greatest success in the application of low viscosity materials and in coating embossed or rough sheets. The coating roll can usually be rotated in either direction and applies the coating in considerable excess, permitting the latex to fill the impressions and irregularities in the sheet. It is possible and sometimes desirable to modify the coater by replacing the doctor knife with a doctor roll of approximately $\frac{3}{4}$ inch diameter.

It has been found that when latex coatings are applied to the sheet by the applicator roll, ridging occurs parallel to the direction of the sheet; the larger the diameter of the applicator roll, the more coarse are the ridges in the coating. These coarse ribs may be reduced to finer ribs or eliminated entirely by using a small diameter doctor roll. Two doctor rolls, one right after the other, or perhaps even three, are sometimes necessary before all these ridges can be completely eliminated. The doctor rolls should be driven opposite to the direction of the sheet so as to give wiping action.

Close control of the viscosity of Geon latex on this type of roller coater is important. A recommended range of 100-500 centipoises will permit the smoothest coating from which it is easiest to remove the excess by doctoring.

Of the roll coaters, the reverse roll coater is the most flexible. The thickness of the coating cast onto the web is governed either by the opening between the doctor and casting rolls or by changing the speed of the casting and doctor rolls in relation to the web speed. The slower the web travels in relation to the casting roll, the greater the amount of coating that will be cast onto the web. The coating is cast onto the surface of the web, the web being held against the surface of the casting roll by a resilient rubber backing roll in most cases. Since the coater uses a casting principle to apply the coating on the web, the varying caliper of the web does not affect the uniform thickness of coating being applied.

It has been found that the most suitable range for viscosity of Geon latices for use on reverse roll coaters is 800-900 centipoises.

Another type of coating machine that can be used to apply Geon latices is the familiar brush coater. Geon latices can be readily handled on it. The oscillating brushes ordinarily used to smooth out the coating can be replaced by steel doctor rolls. A series of these rolls of decreasing diameter, wiping against the sheet, effectively smooths the coating and saves considerable time in cleaning brushes.

The most suitable machine, however, to apply Geon latex coatings to paper products is the air knife coater. Here the coating is applied to the web in a regulated excess by means of an applicator roll which can be driven in either direction at varying speeds. The slotted air blade, which can be micrometrically adjusted at various positions along the blade to give uniform slot openings, distributes the coatings, and planes off the excess. The amount of coating applied is controlled by the air pressure, and by regulating speed of the coating roll to supply an excess of the ultimate coating weight desired. It has been found that a latex viscosity between 800 and 900 centipoises is the most suitable range for use on this machine. Almost any required weight of coating can be applied, depending on the drying facilities available. (Summarized from talk by E. B. Osborne, B. F. Goodrich Chemical Company, Cleveland, Ohio, before Chicago Section, T.A.P.P.I.)

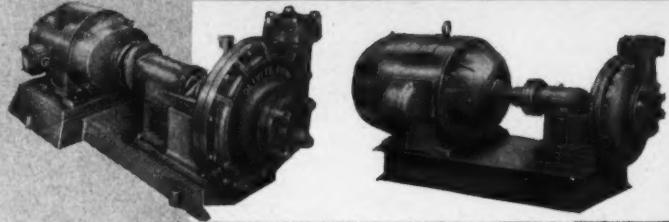
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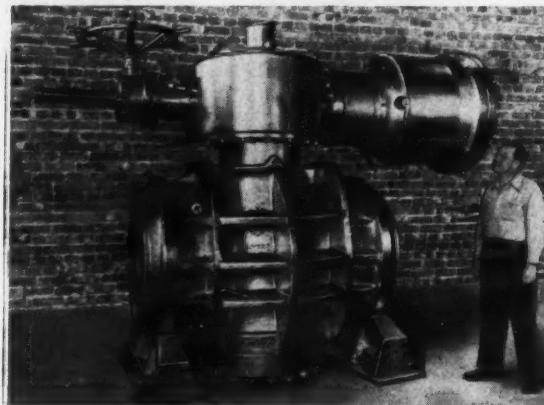
Page 64

IDEAS

Builds dozen 34" plug valves for gas pipe-line . . .

valve with cylinder operating unit is 81 1/2" high, 59" end-to-end; plug alone weighs 1/2 ton

What is said to be the largest lubricated plug-valve ever constructed has just been completed at the Nordstrom Valve plant of Rockwell Manufacturing Company at Oakland, Cal. It has just undergone the most rigid tests. Twelve of these giant valves are being manufactured for the initial section of Pacific Gas & Electric Company's 34" gas pipe line from the Colorado River into the San Francisco Bay area.



Gas pipe-line plug valve weighs 8 tons

Ten of the valves will be 30" x 34" (Figure 4649 1/2) with elevated gearing, and two of the same type will have electric motor control. Valves are designed with butt-welding ends and are rated for 1000 lbs. wog. More than 1600 man-hours were required to develop the first of these valves, including time for designing, machining and testing.

Each valve with cylinder operating unit is 81 1/2" high and the end-to-end dimension is 59". Weight of the plug alone is 1000 lbs.

The cylinder is designed to operate the valve under balanced pressure equal to the maximum working pressure of the valve, with not more than 75 lbs. differential pressure across the cylinder.

Maximum thickness of the body wall is 3" and that of the throat wall is 3 1/8". (Nordstrom Valve Co., Oakland, Calif.)

Study stability of AISI alloy steels at elevated temps . . .

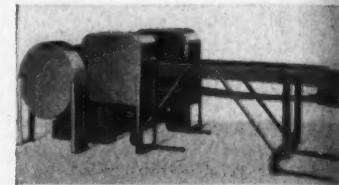
involves alloy compositions exposed for 10 years to determine stability characteristics

A paper will be delivered at the Annual Meeting of the American Society for Metals in Cleveland, next October, which will discuss the stability of AISI alloy steels at elevated temperatures. A condensation is presented here.

Changes in microstructure observed in typical AISI alloy steels exposed in the welded and unwelded conditions at 900°F and 1050°F. (480 and 565°C) for a period of 10,000 hours, are discussed in this paper, along with impact and hardness properties and oxidation characteristics. Although all the steels were exposed at 1200°F. (650°C.) for 10,000 hours, decarburization and scaling at this temperature were too severe to permit evaluation of properties.

The program as a whole will include a study of tensile

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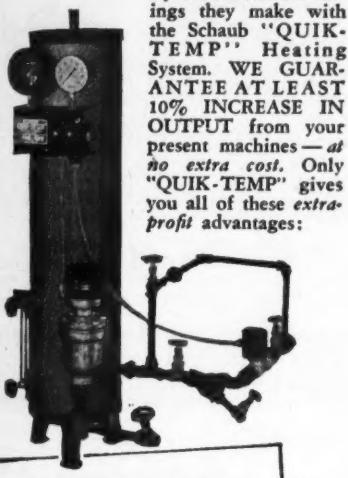
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IDEAS

and creep rupture characteristics of the steels before and after exposure. The present investigation is a continuation of the work on stability at elevated temperatures of a large number of steels previously discussed. The overall program for the study of AISI alloy steels at elevated temperatures involves several alloy compositions selected for exposure at 900, 1050 and 1200°F. (480, 565 and 650°C.) for a period of 10 years to determine stability characteristics.

AISI alloy steels are of the ferritic type and were developed primarily upon the basis of their response to heat treatment. They are widely used in the quenched and tempered condition and may contain manganese, chromium, molybdenum, nickel, silicon, vanadium or other alloying elements, added to obtain a desired alloying effect. Molybdenum seldom exceeds 0.30% and chromium 1.75%. AISI ferritic stainless steels containing up to 27% chromium and the AISI austenitic stainless steels are also under investigation, but are not included in the present discussion.

In the present phase of the work, two carbon levels were investigated in the 3100, 4100, 4300, 8600, 4600 and 6100 series, and a single carbon level in the 2300, 2500, 3300 and 4800 series. The steels were either normalized or annealed at 1650°F. before exposure.

Conclusions: 1) The steels investigated were appreciably oxidized and decarburized after 10,000 hours exposure at 1200°F. (650°C.) in air. 2) AISI nickel and nickel-molybdenum steels at 1050°F. (565°C.) after 10,000 hours exposure. Graphite was also observed in the AISI 2320 and 4640 steels after exposure at 900°F. (480°C.) 3) AISI steels containing chromium did not graphitize after 10,000 hours exposure at either 900°F. (480°C.) or 1050°F. (565°C.) even though an appreciable amount of aluminum was used in the deoxidation practice and in certain instances relatively large amounts of carbon were present. 4) AISI steels containing chromium were microstructurally more stable than those without chromium. The chromium-vanadium and chromium-molybdenum steels were the most stable. 5) Steels investigated were not embrittled by exposure at the elevated temperatures. 6) Hardness of steels investigated was, in general, slightly decreased after exposure. (Paper summarized here is by A. B. Wilder, Chief Metallurgist, National Tube Co., Pittsburgh, Pa., and by J. O. Light, Chief Metallurgist, Lorain Works, National Tube Co., Lorain, Ohio, United States Steel Subsidiary)

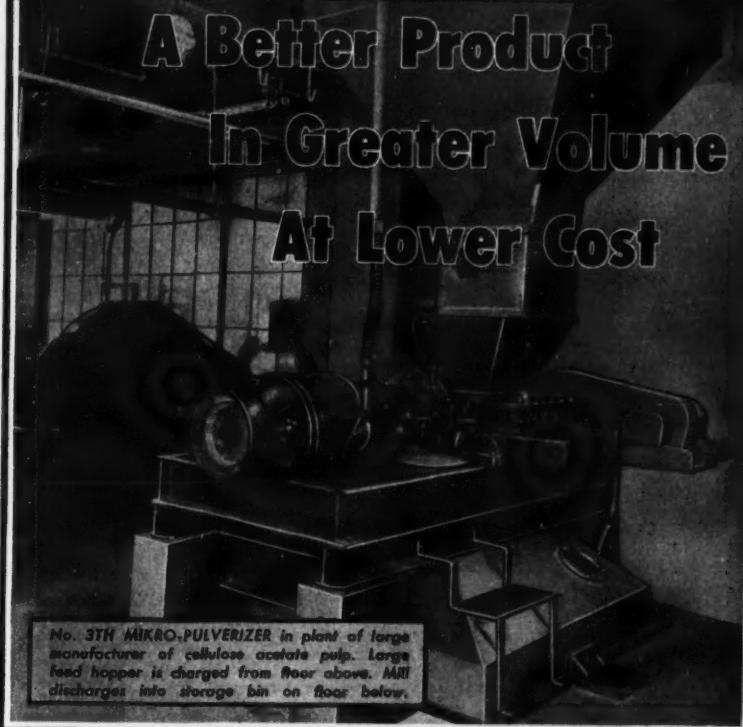
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Dimensional drawings, photographs simplify installation. Bul. 427, issued by The Foxboro Co., Dept. CP, Foxboro, Mass. When inquiring specify CP 3020 on handy form, pages 2 and 3.

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IDEAS

Floor's capacity to support power trucks checked by simple formula . . .

industrial power trucks introduce floor stresses 3 times those under uniform loading operations

Extensive floor loading tests recently conducted by Yale & Towne Manufacturing Co. — Philadelphia Div. — will enable users of the industrial power trucks to determine whether their floors, particularly secondary floors, will support power truck operations.

The new data provide a quick method of approximating safe floor capacities when subjected to power truck operations. Engineers are aided in choosing equipment in permissible weight ranges and in selecting suitable unit-load weights for safe operations.

Tests pertain particularly to the concrete-slab type of floor construction which most architects claim is one of the most desirable types for industrial plants.

If results of preliminary computations as carried out below are close to the floor loading capacity, a consultant should be engaged before installing a truck system.

Tests show that the common types of industrial power trucks in use today impose a dynamic load on the floor approximately 1 1/2 times the static weight of the loaded machine. Considering the truck as a concentrated load, the bending moment is about twice the bending moment for uniform loading. These two factors indicate that industrial power truck operations introduce floor stresses 3 times those presented under uniform loading conditions.

To determine the truck load which a floor will carry, the area of space devoted to aisle in one bay is considered. For example, a 20' x 20' bay having a 10' aisle and rated floor capacity of 250 lbs. per sq. ft. would allow a static load 20' x 10' x 250 lbs./sq. ft. or 50,000 lbs. Just how much of this weight will be apportioned to the truck and how much to the load will depend upon the type of load and upon the type of truck desired.

This assumes that the storage areas along the aisle are not overloaded. Two or more trucks could pass one another over this area in a given bay, provided their combined weight is not greater than 16,000 lbs. Particular attention should be paid to this factor in front of elevators.

Further studies may be required for other types of floors, such as wooden floors where only a few boards may receive the full weight of the truck.

To summarize, simple study can give an approximate indication of weight of the loaded trucks which can be operated safely on a given floor. When these computations indicate that the weight of the proposed trucks approaches the maximum safe load figures, a detailed study by a competent engineer should be made.

If the weight of the loaded machines is comfortably below the maximum figures, and the building is in a good state of repair, it would be safe to apply a trucking system without such a detailed engineering study. (Yale & Towne Mfg. Co.—Philadelphia Div.—Philadelphia, Pa.)

Attempt at mixing paint with sound waves may eliminate stirring before use . . .

researchers are hopeful technique, if successful, will also end "floating" and "flooding"

Technicians at the Chicago laboratories of The Sherwin-Williams Co. have been conducting exhaustive tests in the

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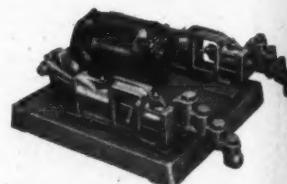
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When inquiring check CP 3024 on handy form, pgs. 2-3

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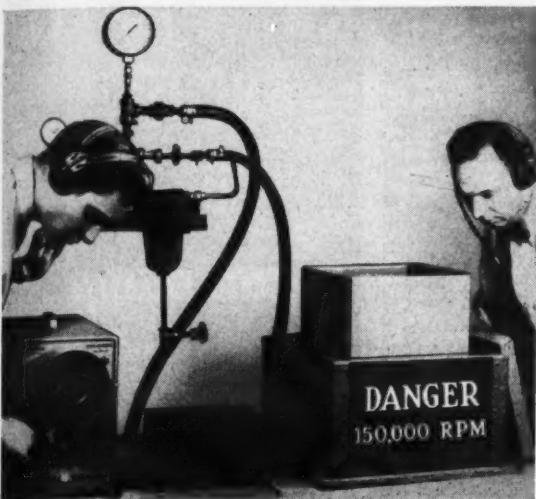
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When inquiring check CP 3025 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

use of high frequency sound waves to mix pigments, oils and vehicles. This technique may hold the answer to the problems of preventing paints from settling in the package. Basic difficulties involved are concerned with placing in suspension pigments and vehicles which in themselves are foreign to each other.

A degree of "package stability" which would eliminate the need for stirring is but one of the results that may come out of the study. The better dispersion of the oils



Paint materials in box on top of generator are subjected to sound waves; oscilloscope (left) shows rpm's

and pigments in the paint might result in an end to the phenomenon of "flooding" and "floating" which causes a variation of surface color, and might give greater hiding power.

Photo shows experimental work in progress utilizing a 2000-watt sound generator with a speed of 150,000 revolutions per minute, which was built by the company's technicians. It contains 60 small cone shaped holes spaced evenly around its stationary head. At maximum speed, it develops 150,000 cycles per second.

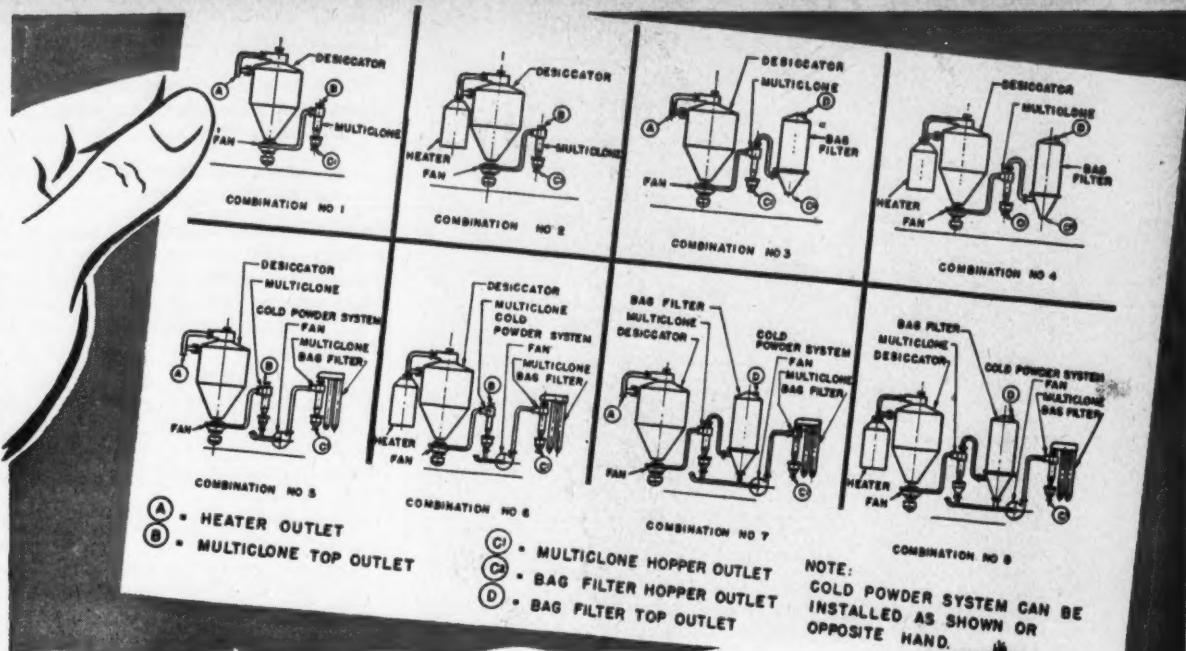
Early experiments have been confined to placing the material samples directly over the ultra-sonic generator. Ultimately it may be possible to use this method of dispersion by simply having the paint ingredients pass through the field of sound waves.

Men in photo are wearing ear-phones as protection against sound from the generator at right. (The Sherwin-Williams Co., 101 Prospect Ave., Cleveland, Ohio)

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Bul. 62, issued by Metallizing Engineering Co., Inc., Dept. CP, 38-14 30th St., Long Island City 1, N. Y. When inquiring specify CP 3026 on handy form, pages 2 and 3.



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IDEAS

**"Stitch-in-time" sight-screener
checks 14 eye functions, cuts
on-job casualties . . .**

portable instrument shows need for sight correction before accidents occur

Over 2,000,000 workers — 10% of those employed in industry — are now receiving the benefits of new programs installed by leading manufacturing plants to improve eye safety and conserve sight. The nation-wide program is being carried out in cooperation with the ophthalmic professions.

An analysis of reports, received from plants participating, indicates that one out of every three factory workers, on the average, needed eye-sight correction. It was also shown that the adoption of recently conceived safety and visual efficiency programs had resulted in a decrease of eye and other accidents.

The program for improving visual conditions had its inception several years ago. W. T. Cameron of American Optical Co. points out that, primarily, the plan provided means for checking industrial vision. As it was obviously impractical to give vast numbers of workers complete on-the-spot eye examination, a portable sight-screening instrument was developed by American Optical Company. It can be carried to any location easily, and will check 14 important visual functions in a few minutes.

If professional evaluation of the check indicates need for visual care, employees are advised to seek professional attention. In addition, workers on eye-hazardous jobs are provided with safety goggles, or, if necessary, with prescription safety goggles.

Other features of the program include establishment of eye-protection standards, a program for fitting and maintaining eye-protective devices, and recommendation for improvement of conditions affecting vision, such as weak or glaring illumination.

Plants in chemical, metal-working, oil, transportation and other fields have adopted the program. In a study to determine whether corrective-protective goggles actually helped to make employees safer workers, Compton & Knowles Loom Works, Worcester, Mass. discovered a 54% decrease in accidents from eye injuries. These included confusions, abrasions and minor lacerations.

Indicative of the many employees in various plants with unsatisfactory vision was the screening of 5,688 workers of Caterpillar Tractor Company, Peoria, Ill. Of these, 1,265 were found to need professional visual care. Also furnishing impressive proof of the value of such a program is the experience of Shell Pipe Line Corp., Houston, where eye-injury costs were reduced from \$4,262 to \$204 in the year following adoption of the safety and visual efficiency plan.

Hughes Tool Co., Houston, has fitted 726 employees with prescription safety goggles and states that it is reasonably certain that six eyes were saved by goggles. Looking at it from strictly a dollar-and-cents standpoint, it would have cost \$12,000 in compensation alone, plus about \$3000 in medical and hospital expense.

In January, 1948, the United States Navy adopted the visual efficiency program to implement its already well-functioning eye protection service. Over 230,000 shore-based civilian workers are affected by the program in addition to uniformed, industrially employed personnel. Under the program thousands of Naval workers exposed to hazards have been provided with prescription safety goggles. (Summarized from data by American Optical Company, Southbridge, Mass.)

SIER-BATH

SCREW

PUMPS

can pump
the
darndest stuff!



SIER-BATH
SCREW PUMP

Pumps: acetates, asphalts, brines, Bunker C fuel oil, celluloses, greases, molasses, syrups, etc. Pressures up to 1000 lbs.

No matter how gooey the stuff, it can't "gum up the works" in a Sier-Bath Screw Pump. The powerful thrust of its screw moves materials so viscous that they are often in a semi-solid condition.

The simple design (only two moving parts) and accurate but sturdy construction, make these screw pumps long-lived and keep them relatively free of maintenance. They are available in horizontal and vertical models. Send for booklet.

ALSO MANUFACTURERS OF SIER-BATH
GEAREX ROTARY PUMPS AND SIER-BATH
PRECISION GEARS

FOUNDED 1905

MEMBER A.G.M.A.

Sier-Bath
GEAR and PUMP CO., Inc.
9253 HUDSON BLVD., NORTH BERGEN, N.J.

When inquiring check CP 3029
on handy form, pgs. 2-3

SOLKA-FLOC



A Processing Aid For The Manufacture of Floor Tile

Use 12 volumes of SOLKA-FLOC to replace an equal volume of mineral filler to obtain:

EASIER PROCESSING STOCKS

- better plasticity
- lower batch temperature
- less power consumption

BETTER FINISHED TILING

- resilience with hardness
- high dimensional stability
- smoother surfaces

For further information and samples, write to our Technical Service Department.

BROWN COMPANY

FOREST PRODUCERS  PURIFIED CELLULOSE
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STREET, SAN FRANCISCO 4, CAL. • BROWN CORPORATION,
100 SUN LIFE BLDG., MONTREAL 2, P.Q., CANADA

When inquiring check CP 3030 on handy form, pgs. 2-3

SEPTEMBER, 1949

IDEAS

Double life of tanks used in sour distillate service with gunite linings . . .

cost is approximately 50%-60% that of a new tank; complete job involves three operations

Tank bottoms in sour-distillate service have been protected with concrete for about 18 years at the Baytown, Texas, refinery of Humble Oil & Refining Company. The first applications of concrete were made to the tank bottoms themselves, but later applications included a gunite lining extending about 18 inches up the shells of the tanks. Good results have led to the adoption of the now common practice of guniting the inside surfaces of essentially all tanks in run-down and intermediate sour distillate service. Three steps are required: surface preparation, addition of reinforcement and application of gunite.

It is common practice to sand-blast new tanks to remove mill scale. Reinforcement for the bottom of the tank usually consists of 0.25" steel rods placed on 18" centers. Ten gauge steel mesh, 3" x 3", is placed over the rods and tied at the corners of the squares formed by the 0.25" rods with 16 gauge wire. As the gunite is applied, the reinforcement is raised so that it will be at or near the center of the layer of gunite.

The reinforcement of the shell consists of 0.25" rods placed vertically with a horizontal spacing of 18". These rods are tack-welded to the shell on 18" centers and are bent away from the shell about 0.125" between each weld. Ten-gauge wire mesh is placed over the rods and tied on 9" centers with 16-gauge wire. Reinforcing is cut along the edges of the door-sheets to facilitate removal of the door sheets.

Reinforcement on the roof of a tank consists of 0.25" rods tack-welded on 15" centers. These rods are placed parallel with maximum spacing of 15". Ten-gauge steel mesh 3" x 3", is placed over the rods and is tied to the rods on 6" centers with 16 gauge wire. The rafters and other structural members of the new tanks are covered with wire mesh, 3" x 3", which is tied in place with 16 gauge wire. The structural members of the new tanks are wrapped with wire mesh before the roof plates are installed.

A gunite lining consists of one part cement and three parts sand, and is usually applied with a Type N-1 cement gun. Clean washed sand, with a nominal moisture content, and conforming to ASTM Specification C-33-39 for fine aggregates, is used. The gunite is applied to a 1" minimum thickness on the shell, roof and structural members, and to a 2" minimum thickness on the bottom.

The sequence of applying gunite is from the top of the tank to the bottom. The work is usually done from floats, which necessitates filling the tank with water and withdrawing it as the work progresses.

The gunite lining is usually cured by keeping it moist for a minimum of 48 hours. In some cases, steam may be admitted to the tank to facilitate curing, but it is not often that this is necessary in warm climates.

The cost of applying a gunite coating is about 50% to 60% of the cost of a new tank. The application of gunite coatings to a tank is justified on the basis that they at least double the life of the tank. The maximum life of such coatings in sour-crude and distillate services has not been established.

(Summarized from article by E. Q. Camp, Humble Oil & Refining Co., Baytown, Texas, which appeared in *Corrosion*, Official Publication, National Association of Corrosion Engineers.)

INDUSTRY'S

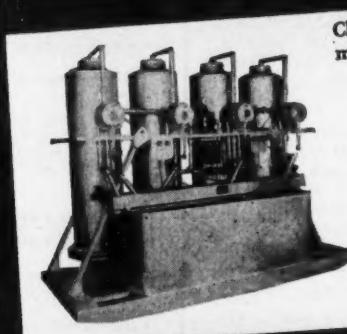
Pure Water Problems

ARE SOLVED WITH

BARNSTEAD EQUIPMENT

The need for Pure Water by Industry is basic . . . there are hundreds of processes in the chemical, food, pharmaceutical, metallurgical and industrial fields where Pure Water plays an important part. But the requirements are different. Some need Distilled Water . . . others Demineralized Water. That is why Barnstead makes both . . . Stills for Pure Distilled Water . . . Demineralizers for Mineral-Free Water. And with over 70 years of experience, Barnstead Engineers can make the proper recommendations for either Stills or Demineralizers OR both to provide the correct daily flow of Pure Water to fill your needs at the lowest cost.

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Chances are that if you need high-test mineral-free water, Barnstead Demineralizers can save you money. For Barnstead Demineralizers produce water of far higher purity at lower cost, with a minimum of maintenance. Whether you need 5 gallons an hour or 1000 . . . there is a Barnstead Demineralizer to fit your requirements *Exactly*. And a Barnstead Engineer can "plot" the course of Pure Water *Precisely*! Ask for the Barnstead detailed recommendations. No obligation, of course.

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For the production of highest quality, chemically pure, sterile water . . . For trouble-free, automatic operation . . . For distillate of unvarying consistency . . . There's a Barnstead Still to fill your Pure Water needs. And Barnstead Laboratory and Industrial Water Stills are the proven standard of the scientific and industrial world. Barnstead Engineers with over 70 years of Pure Water experience . . . the longest in the field . . . are ready to assist you in your Pure Water Problems.

Send for FREE Water Data Sheet. It's helpful.

TRADE SHOWS 1949 & 1950
Barnstead
STILL & STERILIZER CO.

66 Lanesville Terrace, Forest Hills
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First in
Pure Water
Since 1878

When inquiring check CP 3031 on handy form, pgs. 2-3

Flashes from the BEACON

WHAT DOES POLIO HAVE TO DO WITH CHEMICAL PROCESSING? Well, maybe nothing, but the BS&B BEACON is a family magazine as well as an industry magazine, and we know families everywhere want the up-to-the-minute score on this summer-blighting illness. So our September BEACON carries a section, "Polio Facts for Parents," in which we look at the disease from a number of viewpoints and report our findings in simple, everyday language. As a parent, you'll learn how important you are in protecting your family if polio strikes your town.

* * *

Extra protection for chemical processors or anybody with inflammable liquids stores at atmospheric pressure is now available on the newly designed BS&B Vertical Vacuum Vent Valve. A flame arrestor bank of rolled aluminum construction has been built into the old reliable VVH to prevent flashbacks into tanks containing oil, solvents, naptha, glycol, etc. The full story of the new Flame Arrestor is told in the September BEACON.

* * *

HAVEN'T SEEN THE BEACON YET? Now entering its fourth year of publication, the BS&B BEACON is the monthly publication of Black, Sivals & Bryson, Inc. From its first issue the BEACON was tailored to serve a wide audience . . . company employees and stockholders receive it, of course — but so do college and technical school libraries, BS&B customers, dealers, and friends in allied industries. We'd like you to get it regularly too.

* * *

WHEN BEACON Staff Artist David Hunt gets a wild look in his eye and grabs a pencil, we know another "BEACON Original" is a-brewin'. Dave, often in partnership with Record Columnist Roy Parmenter, dreams up a page of original cartoons each month for the liveliest company magazine you ever saw.

* * *

DAVE DOES serious work, too, as those of you know who have seen his spirited drawings of Denver and Kansas City landmarks, which accompanied the feature stories on these cities this year in the BEACON. Suspecting that our "Parade of Cities" would produce a "run" on our magazine supply, we coaxed the pressmen into running a few extra copies of these issues (February through June). If you want any of these beautifully illustrated stories, just say so when you place your name on the BEACON mailing list.

* * *

PRODUCT NEWS, feature articles on finance, "characters," and events . . . monthly departments for the whole family, review, commentary, humor, and fiction . . . all come to you through the pages of the BEACON.

* * *

The BS&B BEACON is mailed without charge to those who enjoy it. A request on your company letterhead will do the trick.

Write to:

BLACK, SIVALLS & BRYSON, INC.
Industrial and Public Relations Division
Kemper Building, 720 Delaware
Kansas City 6, Missouri

When inquiring check CP 3032 on handy form, pgs. 2-3

Page 70

New Literature

Water-lubricated pumps solve all water-transfer problems

Eight-page, 3-color bulletin tells of water-lubricated turbine pumps. States that pumps are designed for wide variety of uses such as sump, condenser, line and booster pumping, for circulating, for dewatering, etc. Points out that interchangeability of parts lends even greater flexibility of operation.

Cut-away drawing shows all details of pump construction, with both closed and semi-open impellers being pictured in place on line shaft. Gives sizes, ratings, typical powering arrangements, etc. Bul. 1014, issued by Johnston Pump Co., Dept. CP, 2324 East 49th St., Los Angeles 11, Calif. When inquiring specify CP 3033 on handy form, pages 2 and 3.

Gravity conveyors have many wheel arrangements

Two-page sheet carries discussion of gravity wheel conveyors. Describes 45° and 90° curved sections, 5' and 10' straight sections, 'Y' right-and-left-hand switches, gated sections, adjustable stands and mobile trucks.

Gives specifications, details construction. "Gravity Wheel Conveyors", issued by Sage Equipment Co., Dept. CP, 30 Essex St., Buffalo 13, N. Y. When inquiring specify CP 3034 on handy form, pages 2 and 3.

How to control fouling of cooling condensers

Comprehensive discussion of supplemental water treatment for cooling systems is contained in 6-page brochure. Comments on influence of design on fouling, describes causes of scale, corrosion, and organic fouling, and gives pros and cons of once-through water systems as compared to recirculated water systems.

Methods of controlling concentrations of salts in recirculating systems are outlined, with the object of establishing minimum bleed requirements, yet maintaining close control of fouling. Points out that adequate velocity serves to reduce scale and fouling as well as to increase heat transfer, but that design must prevent excessive friction losses under such operation. Covers subject of pH control and gives advice on chemical cleaning of condensers.

AD 46, by Ralph M. Westcott, issued by The American Society of Refrigerating Engineers, Dept. CP, 40 W. 40th St., New York 18, N. Y. When inquiring specify CP 3035 on handy form, pages 2 and 3.

Catalogs complete line of gearhead motors

Twelve-page catalog covers all Gearmotors, including double and triple reduction units of new design. Specifications are given for units with open, drip-proof, splash-proof, totally-enclosed and explosion-proof enclosures.

Selection table simplifies accurate determination of correct Gearmotor size. Lists minimum sprocket diameters, in addition to table of maximum permissible overhung loads. States that use of sprockets equal to or greater in diameter than those listed assures that no overload can occur on output shaft.

Dimensional drawings amplify text; diagrams show

methods of right and left hand, wall, ceiling and floor mountings. Cat. 1815A, issued by Link-Belt Company, Dept. CP, 307 No. Michigan Ave., Chicago 1, Ill. When inquiring specify CP 3036 on handy form, pages 2 and 3.

Glycol methyl ethers are versatile solvents

Extensive data on four propylene-glycol methyl ethers are contained in 44-page booklet. Discusses properties and uses of methyl ethers of mono, di, and tripropylene glycol as well as those of a mixture of the ethers.

Covers vapor pressure, density, viscosity, solvent power, evaporation rate, hygroscopicity, thermal stability, corrosion effects, and effect on rubber, in 11 tables. Twenty-seven graphs set forth other properties and operating data on the solvents, designated as Dowanols.

"Dowanols", issued by The Dow Chemical Co., Dept. CP, Midland, Mich. When inquiring specify CP 3037 on handy form, pages 2 and 3.

Corrugated expansion joints save space in pipe lines

Corrugated expansion joints save space, installation-time and initial cost in pipe lines, according to a 28-page design guide.

Free-flexing and controlled-flexing joints, supplied with flanged or welding ends, are shown and described. Expansion joints with 2 controlled or free flexing units provide lateral motion where required.

Tables and graphs give data on elongation, line-thrust in pounds, number of corrugations required for different motion requirements, etc. Sectional diagrams show stresses and strains in expanded and compressed joints; examples demonstrate typical calculations. "Design Guide for Corrugated Expansion Joints", issued by Chicago Metal Hose Corp., Dept. CP, Maywood, Ill. When inquiring specify CP 3038 on handy form, pages 2 and 3.

Electric trucks for use with skids or pallets

Stacking and carrying lift trucks are illustrated in 2-color bulletin. Designed for use with skids or with single or double faced pallets, electric trucks are pictured in use transporting and tiering materials of all descriptions. Complete specifications are accompanied by dimensional drawings.

Bul. 24, issued by Lewis-Shepard Products, Inc., Dept. CP, 267 Walnut St., Watertown 72, Mass. When inquiring specify CP 3039 on handy form, pages 2 and 3.

24-page text "blueprints" coating, handling systems

Complete web processing systems and specialized units are detailed in 24-page, 2-color bulletin. Unwind stands, tensioning stands, precision coating and dipping machines, drive rolls, and constant tension windup units are pictured and discussed.

Booklet outlines functions and capacities of complete processing systems for impregnating tire cord, cotton and rayon

web, and paper. Other systems covered in detail are complete coating systems for use with rubber cement, adhesives, organosols, resins, etc., and driers for handling cut stock and aniline ink impressions.

Many schematic drawings and installation photos demonstrate equipment. "Blueprint for Industry, Part V", available on request on company stationery from Industrial Ovens, Inc., Dept. CP, 13825 Triskett Rd., Cleveland 11, Ohio.

Hydraulic oils, lubricants for plastic molders

Hydraulic oils, gum solvents, lubricants and packings, especially designed for injection and compression molding of plastics, are discussed in 4-page, 3-color bulletin. Tells of fortification of hydraulic oils which results in increased film strength, greater oxidation stability, better gum solvent and rust inhibiting properties, and higher viscosity index.

"Houghton Serves the Plastic Industry", issued by E. F. Houghton & Co., Dept. CP, 303 W. Lehigh, Philadelphia 33, Pa. When inquiring specify CP 3040 on handy form, pages 2 and 3.

Toxic eye hazards covered in 102-page manual

Detailed information and advice on toxic eye hazards are contained in 102-page manual. Sets forth standards and tests for eye protection equipment, outlines typical well-organized eye protection program, and gives emergency and first aid procedures in chemical eye injuries.

Tables of toxic chemicals list symptoms and effects of many organic, inorganic, and miscellaneous compounds, such as silt, pitch, quinine, etc. Includes ten illustrations and 5 tables. "Toxic Eye Hazards", prepared by Joint Committee on Industrial Ophthalmology. Remit \$1.00 direct to The National Society for the Prevention of Blindness, Inc., Dept. CP, 1790 Broadway, New York 19, N. Y.

Welding repairs eliminate costly replacements

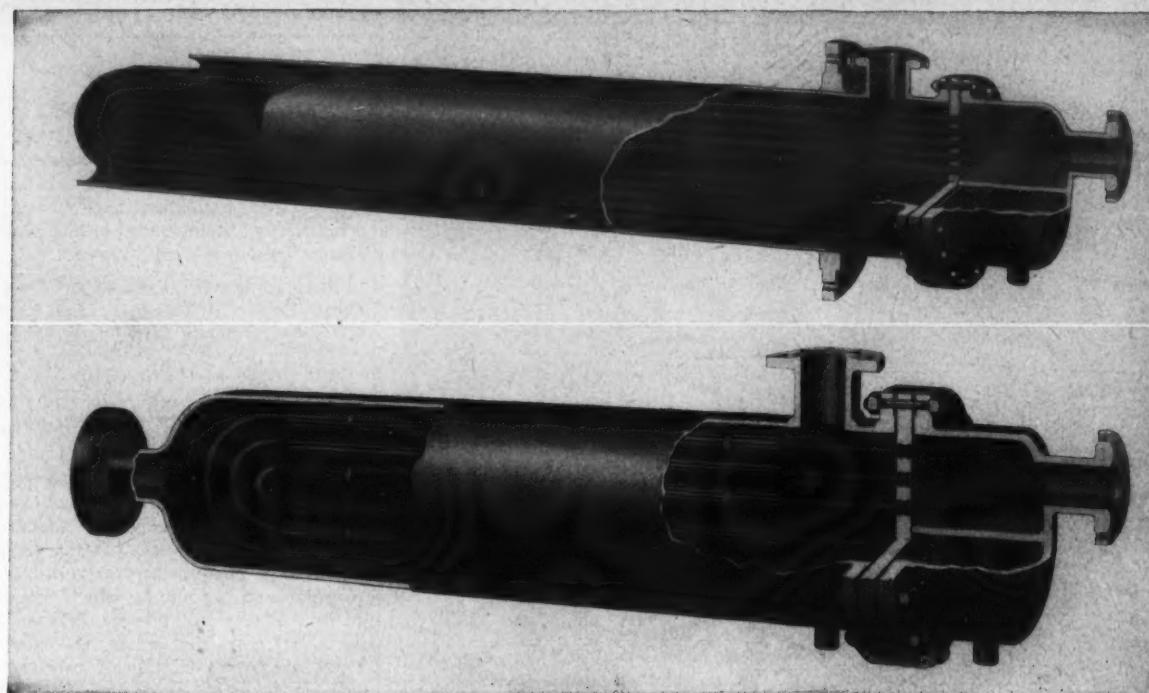
Four case histories describe difficult repairs made successfully on parts which would ordinarily have to be replaced or dismantled, with resultant expensive down time. Four-page bulletin tells of broken forging hammer which was rebuilt in less than 1/3 normal time, describes repair of cracked water jackets and worn drilling bits, and discusses welding of aluminum parts.

Low temperature welding electrodes and rods are stated to permit repairs in many cases where replacement would otherwise be necessary. "Welding Notes of Engineers", Vol. II, Issue 7, issued by Eutectic Welding Alloys Corp., Dept. CP, 40 Worth St., New York 13, N. Y. When inquiring specify CP 3041 on handy form, pages 2 and 3.

Continuous, controlled feeding of batch solutions

Four-page, 2-color bulletin depicts feeders which deliver preset quantities of liquid with accuracy greater than 1%. Discusses principle of operation, which consists of lowering feed end of outlet hose into solution at predetermined rate.

Table gives capacities and dimensions. Photos show representative models; diagrams illustrate good installation practice. Bul. 60-EIA, issued by Omega Machine Co., Dept. CP, 9 Codding St., Providence, R. I. When inquiring specify CP 3042 on handy form, pages 2 & 3.



BROWN FINTUBE Tank Suction Heaters and Line Heaters

● Brown Fintube Tank Suction Heaters are moderately priced and highly efficient. They heat viscous oils so that they can be pumped more easily, and bolt or weld to a tank nozzle, or directly to the tank shell, so all piping and connections are made outside the tank.

The Line Heaters are used as Suction Heaters to permit easier pumping of viscous oils; — or as Pressure Heaters, either to overcome temperature losses in long lines, or to preheat liquids for further processing.

In all cases the bundles consist of Brown Fintube hairpins rolled into the tube sheet in full compliance with the ASME codes. Metal bands, placed around alternate fintubes, prevent the longitudinal fins from interlocking and restricting the flow. This construction avoids baffling, and permits the liquids being heated to pass through the bundle *unobstructed*, in close contact with the fins and center tubes, with *low pressure drop*. Wide range of standard sizes.

*Send for Bulletin No. 482. It gives full details.
Let us quote on your requirements.*



Brown Fintube Hairpin Bundles Showing the Banding of Alternate Tubes that Eliminates Baffles and Assures Unobstructed Flow.



Hairpin Bundle Assembled in Shell Showing Mounting of Tube Sheet Between the Shell and Head.

THE BROWN FINTUBE CO.
ELYRIA, OHIO

FINTUBE
HEAT TRANSFER
PRODUCTS

When inquiring check CP 3043 on handy form, pgs. 2-3

asks the professor



Then get a whiff of this: a little perfume oil, judiciously used, will send sales soaring for even the most prosaic of products! For example, MM&R chemists have pine-scented vacuum cleaner pads...added an inviting aroma to scouring powder...given a different scent to each color in a line of inks! With an MM&R-created scent or taste personality, your product can set a new sales record too!

Think it over—
then, call on
MM&R

Dept. C-15



MAGNUS, MABEE & REYNARD, INC.
SINCE 1893 . . . ONE OF THE WORLD'S GREATEST SUPPLIERS OF ESSENTIAL OILS
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Los Angeles: Braun Corp. • Seattle, Portland, Spokane: Van Waters & Rogers, Inc. • San Francisco: Braun-Knecht-Helmann Co.

When inquiring check CP 3044 on handy form, pgs. 2-3

NEW LITERATURE

Tells of light, efficient insulation

Lightweight Fiberglas insulation, termed Fiberglas Aerocor, is described in 8-page, 2-color bulletin. Tells how extra-fine fibers produce blanket which is extremely light, yet has high thermal efficiency. Tables give thermal conductivity, sound absorption properties, specifications. Photos show many applications.

"Fiberglas Aerocor," issued by Owens-Corning Fiberglas Corp., Dept. CP, Toledo 1, Ohio. When inquiring specify CP 3045 on handy form, pages 2 and 3.

Protect galvanized tanks in use at temps. over 140° F

Problems of protection of galvanized hot water tanks are discussed, and reports on various tests on galvanized tanks are given in 16-page paper. Details reversal of polarity between zinc-iron layers at water temperatures over 140° F, and change of zinc corrosion product from zinc hydroxide to polarizing zinc oxide, which actually becomes a cathode to iron or steel and hastens failure. Tests on hard water, soft water, distilled water, and corrosive waters of many types are reported. Use of galvanic magnesium alloy anodes is discussed, and notes are given on optimum placement of such anodes.

Educational Bul. EB-104, by D. J. Fergus. Remit \$2.25 direct to Cleveland Heater Co., Dept. CP, 2310 Superior Ave., Cleveland 14, O.

Heat-stable silicone grease protects all ball bearings

Detailed instructions for the lubricating of open, single-shielded, double-shielded and cartridge-type ball bearings are contained in 4-page, 2-color bulletin. Points out that new insulating materials make possible high speed, high power, low weight motors, and emphasizes that such motors require lubrication which gives superior protection to bearings.

DC 44 silicone grease is designed for use on bearings operating at speeds to 20,000 rpm and at temperatures between -40° F and 300° F. Tables give quantity of lubricant required for relubrication of bearings of various types and sizes, and contain relubrication schedules for bearings under different service conditions.

Preliminary Data Sheet D-6, issued by Dow Corning Corp., Dept. CP, Midland, Mich. When inquiring specify CP 3046 on handy form, pages 2 and 3.

Lab combustion furnaces for 2400, 2800° F operation

Two laboratory combustion furnaces are pictured and described in 4-page brochure. Large model is designed for difficult combustions in carbon and sulfur analyses, or for use where speed is required. Operates at temperatures up to 2800° F.

Smaller model, said to be ideal for combustion analyses of iron and steel and for low temperature sulfur analyses of organic materials, operates at temperatures to 2400° F. Both models feature heavy wall insulation, adjustable clamps for holding combustion tubes, silicone carbide heating elements at right angles to combustion tubes. Specifications are included.

THERE'S A **Cambridge**

WIRE BELT

to combine movement
with processing

for

MATERIAL

Bagged cement is sped on
its way from the packaging
machine with a minimum of
handling on a Cambridge
Intervul® Belt, a belt
offering low ultimate cost,
high tensile strength, resistance
to distorting strains.
In this photo, open mesh
permits sifting of
loose material for
cleanliness.



Whether your product is big and
bulky or small and fragile, if it must
move during processing or produc-
tion, a Cambridge Woven Wire
Conveyor Belt can do the job.

Woven from any metal or alloy to
any mesh or weave, Cambridge belts
offer dependability, long life, free-
dom from time-wasting shutdowns
for repairs. Among the specially
designed Cambridge belts in service
today are continuous conveyorized
installations for baking, quenching,
tempering, washing, drying, cool-
ing and packaging.

Whenever you have a problem
concerning movement during
processing, call in a Cambridge
Field Engineer.

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trated book. Gives belt
and conveyor design,
applications, installation
data, construction details. Write today!



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Wire Cloth Co.**
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Wire cloth
in rolls

Also specialized
wire fabrications

OFFICES IN PRINCIPAL INDUSTRIAL CITIES

When inquiring check CP 3047
on handy form, pgs. 2-3

Here's A Better Way
To Read Water Levels
Of Inaccessible
Boiler Drums!



Use New
JERGUSON
TRULEVEL
GAGES
For All
Distant
Reading
Problems

JERGUSON TRULEVEL Gages are the ideal solution to your problem when you need to read boiler water level accurately at a distant point, as in the case of inaccessible waste heat boilers.

TRULEVEL brings the liquid level reading of water, or of any condensing medium which you may be using, right down where you can see it. Complete accuracy of reading is assured by the use of a new type datum column, located at the drum.

Quick checking at the distant reading point is another important feature of TRULEVEL, and this is patented and exclusive with Jerguson. By simply turning the two valve handles on the cover it is possible to check gage accuracy in a matter of seconds. For accuracy and safety use the Jerguson TRULEVEL.

IMPORTANT!
Manometric fluid
used in TRULEVEL Gage is color
fast! Simple to
maintain. No leak
age. Another im-
portant feature of
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When inquiring check CP 3048
on handy form, pgs. 2-3

NEW LITERATURE

"Combustion Furnaces, Models 77 and 100", issued by Laboratory Equipment Corp., Dept. CP, St. Joseph, Mich. When inquiring specify CP 3049 on handy form, pages 2 and 3.

**Charts give solubilities of
fatty acid esters**

Two charts set forth specifications and solubilities of polyethylene glycol mono- and di-stearates, laurates, and oleates, and of the corresponding polyethylene glycerol esters. Four-page bulletin tells of solubilities in water, kerosene, naphtha, methanol, ethanol, ethyl acetate, acetone, vegetable oil, mineral oil, and paraffin wax.

"Fatty Acid Esters", issued by W. C. Hardesty Co., Dept. CP, 41 East 42nd St., New York 17, N. Y. When inquiring specify CP 3050 on handy form, pages 2 and 3.

**Discusses liquid level
control methods**

Methods of liquid level control are discussed at length in 32-page, 2-color bulletin. Lever-operated and remote air-actuated liquid level control systems are detailed. Many pictures, diagrams and drawings show conventional arrangements, typical applications, etc. Covers regulating valves of many types, including direct-inlet lever-actuated, equipoise lever-actuated, rotary shaft, and slip stem valves.

Also depicts air pressure filters, float boxes, reducing valves, etc. Gives dimensions, prices, valve flow characteristics, pressure and temperature ratings. Bul. 48-1, issued by Minneapolis-Honeywell Regulator Co., Belfield Valve Div., Dept. CP, Philadelphia 44, Pa. When inquiring specify CP 3051 on handy form, pages 2 and 3.

**Lead-base lubricants withstand
heat, cold, speed**

Twenty-page illustrated bulletin shows research, control and plant facilities of manufacturer of lead-base lubricants. Describes history of production of specialized lubricants for use under severe conditions of heat, cold, pressure, speed, dirt, moisture, etc.

Outlines use in circulating oil systems, in hydraulic systems and on open gears, in flexible couplings, on wire rope, worm drives, and enclosed bearings, etc. Tells of many lubrication problems which have been solved through use of specialized lubricants.

"The Brooks Oil Story", issued by The Brooks Oil Co., Dept. CP, Cleveland, O. When inquiring specify CP 3052 on handy form, pages 2 and 3.

**Acid hose handles slurries,
brines, all acids**

Four-page, 2-color catalog section gives specifications, coupling practices and max. concentrations and temperatures of acids and corrosives which can be handled by acid hose.

Pictures show straight, enlarged and Flexseal ends. Flexseal ends are designed so that split flanges will press hose ends together, forming tight, non-metallic joint.

Cat. Sec. 3440, issued by The B. F. Goodrich Co., Dept. CP, Akron, O. When inquiring specify CP 3053 on handy form, pages 2 and 3.



Stainless steel pulping vessels, fabricated by Birtank for a leading soap manufacturer.

USEFUL • ECONOMICAL • LONG-LIVED

Stainless Steel Vessels

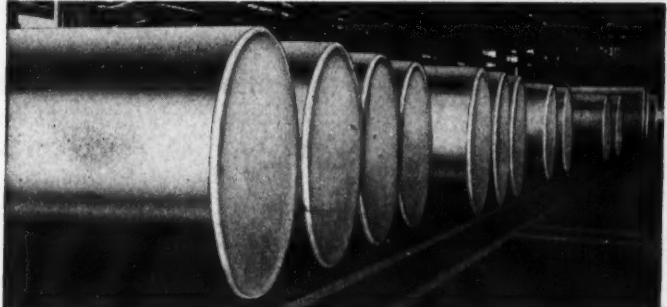
FABRICATED BY



Industrial users of steel containing vessels should consider the many advantages of all-welded stainless steel vessels, fabricated by Birtank.

No other metal affords the variety of processing and storage uses, the economy of operation and maintenance, and the long life under corrosive conditions as does stainless steel. Birtank will fabricate solid stainless or stainless clad vessels to meet your requirements—in any type or quantity. Our experienced engineering staff will help in vessel design and selection of the proper materials. Efficient service, prompt delivery.

Write, wire or telephone.



A view of the tank assembly line at our North Birmingham plant. The tank rolls accommodate vessels up to 30 feet in length.

BIRMINGHAM TANK COMPANY

Division of
THE INGALLS IRON WORKS CO.

Main Office: Birmingham, Ala.
Pittsburgh • Chicago • New York • New Orleans

THREE PLANTS: Birmingham and North Birmingham, Ala., and Pascagoula, Miss.

When inquiring check CP 3054 on handy form, pgs. 2-3

Airco Nitrogen gives positive Protection against Air Damage

For deaerating, processing, storing and packaging fats and oils, in the packaging of dehydrated foods, and to provide an inert atmosphere, use Airco Nitrogen. It gives positive protection to practically any material susceptible to oxidation and corrosion by air.

For more than a quarter century Airco has been one of the world's leading producers and purifiers of nitrogen—as well as other atmospheric gases: oxygen, argon, helium, neon, krypton, and xenon.

...all known throughout industry for their high purity, unvarying uniformity and dependable qualities. This uniformity and adherence to specifications of Airco Nitrogen are definite factors contributing to its satisfactory use.

To meet your requirements, Airco can supply nitrogen of specific types. Airco Nitrogen is supplied in 224 cu. ft. cylinders, or, if your

plant is equipped with an internal pipeline, delivery in bulk may be made in Airco trailers. For further information address: Air Reduction, General Offices, 60 East 42nd Street, New York 17, N. Y. In Texas: Magnolia Airco Gas Products Company, Houston 1, Texas. On West Coast: Air Reduction Pacific Company, San Francisco 4, Calif.



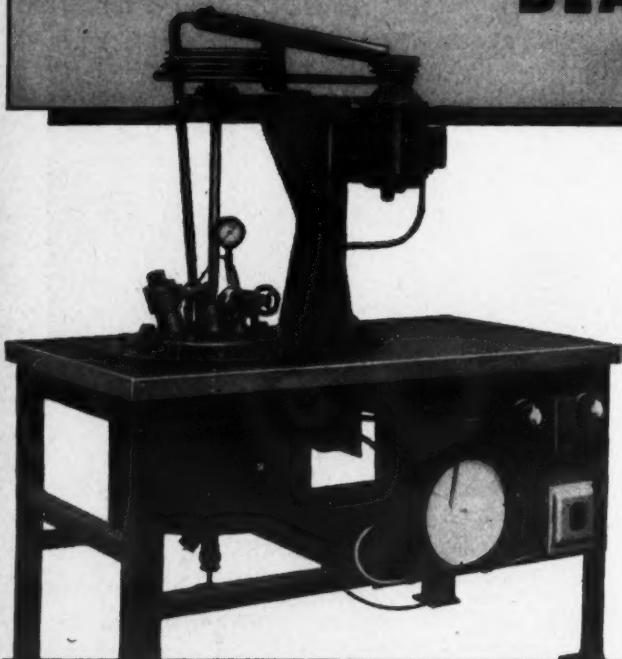
AIR REDUCTION

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HEADQUARTERS FOR OXYGEN, ACETYLENE AND OTHER GASES...CARBIDE...GAS WELDING AND CUTTING APPARATUS AND SUPPLIES...ARC WELDERS, ELECTRODES AND ACCESSORIES

When inquiring check CP 3055 on handy form, pgs. 2-3

Pretest Your Conclusions WITH A
**BLAW-KNOX 5 GALLON
AUTOCLAVE
PILOT PLANT**



This compact and versatile unit is a link between laboratory determinations and first commercial runs. Money and time can be saved by making test runs in this simple and inexpensive pilot plant. It is designed for a wide range of investigations on synthetic resins, varnish, esterification, polymerization, oil bodying, and organic synthesis. Available for prompt shipment from stock.

**BLAW-KNOX DIVISION
OF BLAW-KNOX COMPANY**
2076 Farmers Bank Bldg., Pittsburgh 22, Pa.

When inquiring check CP 3056 on handy form, pgs. 2-3

NEW LITERATURE

Kettles and vats resist corrosion, conduct heat quickly, evenly

Clad metal, fabricated of copper sheet with stainless steel sheet on both sides of base metal, is discussed at length in 32-page looseleaf folder. Describes ability of metal to transmit heat evenly and quickly. Superior drawing and spinning qualities of the metal are cited.

Data sheets give instructions on fabricating, welding, blanking, drawing, spinning, annealing, and pickling procedures to be followed with metal. Finishing operations are discussed, and physical and mechanical properties are specified. Case histories tell of practical advantages of products fabricated with clad copper, designated as Rosslyn metal.

"Rosslyn Metal", issued by American Cladmetals Co., Dept. CP, P.O. Box 544, Carnegie, Pa. When inquiring specify CP 3057 on handy form, pages 2 and 3.

Full-circle frames protect motors from distortion, dirt

Eight-page, 2-color bulletin tells of heavy, cast-iron frames which surround working parts of motors. Known as "Safety-Circle" design, full-circle frames are set forth as adding protection against falling liquids and objects, against dirt, against distortion caused by drive belt tension, and against other physical abuse.

Many photos show motor construction practices. Bulletin tells of drip-proof, splash-proof, and totally-enclosed types. Drawings and tables give specifications. Bul. 51B-6210B, issued by Allis-Chalmers Mfg. Co., Dept. CP, 1151 So. 70th St., Milwaukee 1, Wis. When inquiring specify CP 3058 on handy form, pages 2 and 3.

Desiccant-bed drying of air, gasses, liquids

Adsorptive dryers, in models for drying of air, gases or liquids, are discussed in 32-page, 2-color bulletin. Standard dual-tower dryers are pictured; methods of reactivation are covered. Supplied with manual, semi-automatic, or automatic controls.

Schematic drawings show how entering temperature and pressure affect size of dryer. Many photographs show dryers in use drying bottled gas, liquids, laboratory gases, organic vapors, air, etc. Other units covered include inert gas generators, bulk desiccant regenerators, oil vapor pipe line filters, etc.

Cat. D-27, issued by The C. M. Kemp Mfg. Co., Inc., Dept. CP, 405 E. Oliver St., Baltimore 2, Md. When inquiring specify CP 3059 on handy form, pages 2 and 3.

How to test, maintain electrical insulation

Subject of insulation resistance testing is discussed in 24-page, 2-color booklet. Compares insulation testing with medical examinations, shows how record-keeping can indicate presence of trouble before a break-down stops production.

Tells of causes of difference in readings from day to day, describes ways of standardizing reading conditions, and comments on causes of insulation failure. Gives many maintenance hints, such as information on how to tell when flooded wiring and machinery is thoroughly dried, how to double-check readings on large equipment, how to isolate

NEW LITERATURE

trouble when meter indicates low resistance, etc.

Bul. 21P8-62, issued by James G. Biddle Co., Dept. CP, 1316 Arch St., Philadelphia 7, Pa. When inquiring specify CP 3060 on handy form, pages 2 and 3.

Semi-automatic determinator speeds carbon analyses

Semi-automatic carbon determinator which raises leveling solution in buret by oxygen pressure is described in 2-page brochure. Tells how oxygen pressure, controlled by 2 needle valves, manipulates all solutions during analysis, thus speeding operation and increasing accuracy.

Photograph shows determinator, known as Model 4000. Points out that combustion tube oxygen may be used to control solutions, no independent oxygen source being required. "Leco No. 4000", issued by Laboratory Equipment Corp., Dept. CP, St. Joseph, Mich. When inquiring specify CP 3061 on handy form, pages 2 and 3.

Catalogs complete line of roller-chains, sprockets

Type A, B, and C sprockets, and wide range of single, double and triple-strand roller-chains are detailed in 44-page catalog. Instructions on selection of roller-chain drive system are given, with tables providing proper speed ratios, values for calculating chain length, installation and lubrication recommendations.

Sprockets and roller chains from $\frac{1}{4}$ " pitch single-strand to $\frac{1}{4}$ " pitch triple-strand are pictured and specified, with tables showing hp ratings, lubrication practices, etc. Cat. 709, issued by Diamond Chain Company, Inc., Dept. CP, Indianapolis 7, Ind. When inquiring specify CP 3062 on handy form, pages 2 and 3.

Light, flexible air hose carries 250 psi

Oilproof airhose, said to be more flexible and 50% lighter than conventional air hose of the same working pressure, is pictured and specified in 4-page, 2-color bulletin. Described as having oilproof, tough cover that resists constant flexing and weathering, and will not separate from carcass, the hose is supplied in sizes from $3/16$ " to $1/2$ ", in 25' and 50' lengths. Inner tube is reported to be oilproof, flakeproof.

Other air hoses for specialized service are also covered. Bul. 3460, issued by The B. F. Goodrich Co., Dept. CP, Akron, O. When inquiring specify CP 3063 on handy form, pages 2 and 3.

Filter adsorbs oil vapors from compressed air

Brochure tells principle of operation of adsorptive air filter which removes oil and water vapors from compressed air, as well as oil and water mist, pipe scale, other impurities.

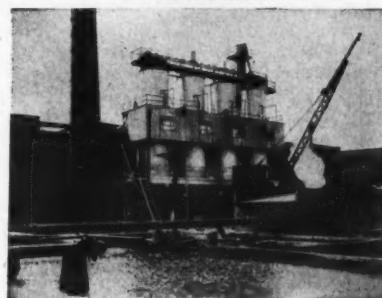
Shows how air is whirled about chamber, passes through porous stainless steel cartridge, and then passes through packing of S/V Sovabead which adsorbs all vapors. "Ad-sorptive Air Filter", issued by Industrol Corporation, Dept. CP, 88-35 76th Ave., Glendale, Brooklyn 27, N. Y. When inquiring specify CP 3064 on handy form, pages 2 and 3.



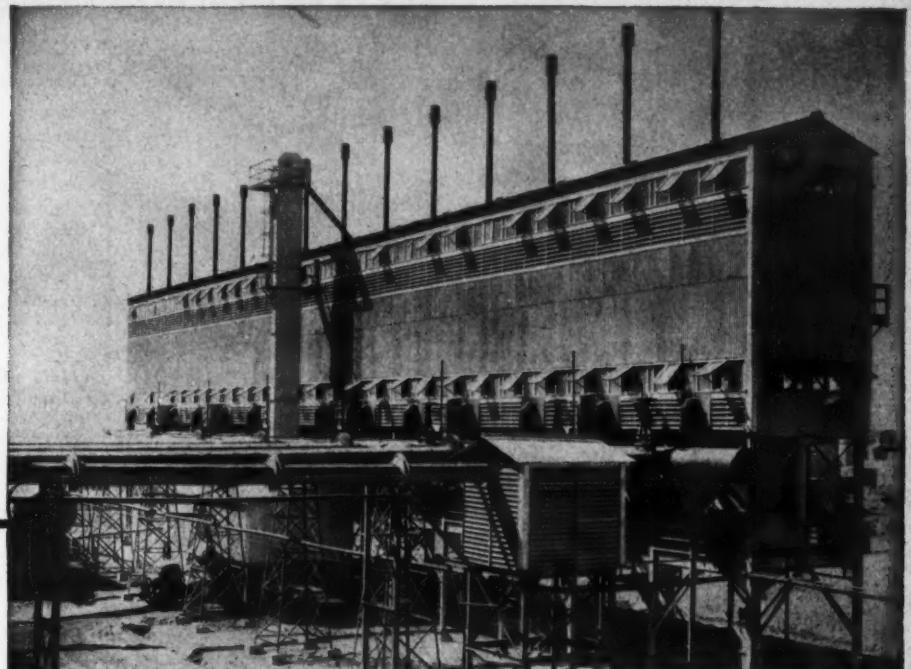
14 largest-size Wellman-Galusha Gas Generators all installed in one building



6-unit plant of 10' Wellman-Galusha Gas Generators



4-unit plant of Wellman-Galusha Gas Generators



WELLMAN MANUFACTURES THE FAMOUS GALUSHA Clean Gas Generators

The Wellman-Galusha is a fully water jacketed gas generator with exceptionally efficient rotary grates, ample fuel storage bins and provision for the generation of steam required for gas making—all incorporated in the machine itself.

The lowest priced grades of Anthracite coal, "rice" or smaller, and coke, "pea" or "breeze", can be satisfactorily and economically gasified.

WELLMAN WILL BUILD IT!

Car Dumpers (all types)

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Gas Producers

Skip Hoists

Special Cranes (Wharf, Dry-Dock, Hammerhead, Pontoon)

Industrial Furnaces

Coke Pushers

Mine Hoists

Charging Machines

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THE WELLMAN ENGINEERING COMPANY

7032 CENTRAL AVENUE

CLEVELAND 4, OHIO

When inquiring check CP 3065 on handy form, pgs. 2-3

DON'T WASTE MANPOWER!

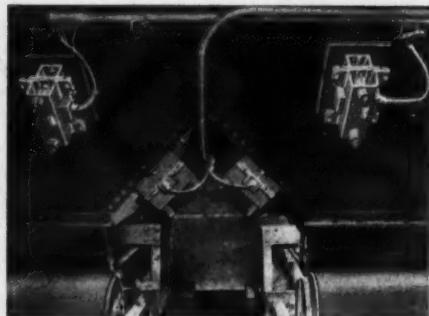
- hammering and poking arched and plugged bins, hoppers, bunkers and chutes!

APPLY
SYNTRON
"Pulsating Magnet"

ELECTRIC VIBRATORS

Banged-up and dented bins and hoppers cost money in replacement and in man hours lost.

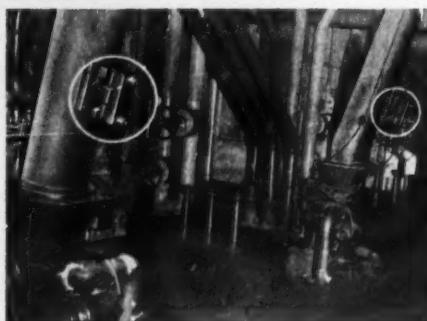
SYNTRON Vibrators eliminate the arching and plugging that takes a man's time to pound, and damage, those bins and hoppers.



They can be applied to any size and shape of bin, hopper and chute — whether made of steel, wood or concrete.

Thickness or gauge of wall is the most important factor. However, overall dimensions, cubic content, degree of fineness and moisture content of material must also be considered.

Catalog data is available on request — or write giving the details of your problem — our Engineering Department will be glad to give you their recommendations.



Pulsating electromagnets that produce 3,600 vibrations per minute from 110, 220 or 440 volts, 60 cycle A.C.

There are no cans, gears, or eccentrics — merely electromagnetic reciprocation from half-wave rectified current.

SYNTRON CO.

110 Lexington, Homer City, Pa.

When inquiring check CP 3066 on handy form, pgs. 2-3

NEW LITERATURE

Describes solvents

Physical and solvent properties of five active and six latent solvents are presented in 4-page bulletin, "Celanese Solvents," issued by Celanese Corporation of America, Chemical Division, Dept. CP, 180 Madison Ave., New York 16, N. Y. When inquiring specify CP 3067 on handy form, pages 2 and 3.

Lists highly purified chemicals, gases

Hundreds of highly purified organic chemicals are listed in 20-page, 2-color bulletin. Gives standard package sizes for each material. All chemicals are available in 3 grades: reagent, practical, and technical.

Also available is list of specifications and prices of many compressed gases. "Fine Organic Chemicals, List No. 7," and "Compressed Gases and Gas Regulators", issued by The Matheson Co., Inc., Dept CP, East Rutherford, N. J. When inquiring specify CP 3068 on handy form, pages 2 and 3.

Corrosion-resistant pulp lines

Corrosion- and wear-resistant pipe for board mill stock, bleached and unbleached kraft and sulfite pulps, white water, etc., are detailed in 4-page, 2-color bulletin.

Gives case histories which state that Monel lines have carried corrosives in the paper industry for 10, 15, and more years without maintenance.

"Stock Lines", issued by The International Nickel Company, Inc., Dept. CP, 67 Wall St., New York 5, N. Y. When inquiring specify CP 3069 on handy form, pages 2 and 3.

Tells of box, muffle lab. furnaces

Electric laboratory furnaces are covered in 2 bulletins. First bulletin discusses midget, high-temp. furnaces for continuous operation at 2500°F or lower. Tables give ratings and dimensions; diagrams show floor plan and side elevation.

Other bulletin tells of box and muffle furnaces with spacious heating chambers, counter-balanced doors, silicon carbide heating elements.

Buls. 315 and 515, issued by Burrell Technical Supply Co., Dept. CP, 1942 Fifth Ave., Pittsburgh 19, Pa. When inquiring specify CP 3070 on handy form, pages 2 and 3.

Is this the solution to
your lubrication problems, too?

FOR more than 20 years, Farval has been saving money for users. Through efficient, dependable lubrication of machines and industrial equipment of all kinds, Farval saves 4 ways: It saves oiling labor, it saves lubricant, it reduces bearing expense, it eliminates down time.

The Farval System is a positive mechanical method of delivering oil or grease under pressure to a group of bearings from one Central Station, in exact quantities, as often as desired. It consists of a central pumping unit, two main supply lines and a measuring valve for each bearing.

Catalog No. 25 and "Case Studies" give you the facts and figures. The Farval Corporation, 3257 East 80th Street, Cleveland 4, Ohio.

Write for these
FREE bulletins



For personalized service:
Write or phone, John E. Millikan,
Cleveland exchange—VUlcan 8-4560.

When inquiring check CP 3071 on handy form, pgs. 2-3

THESE NEW BULLETINS



... show
design advances in
Corrosion-Resisting

PLUG VALVES

Clearly labelled cutaway views let you inspect every design detail of Durco Type B Top Lubricated and Bottom Lubricated Plug Valves. You can see the flexible jointed plug feature in



DURCO
ADV. 97-GM

Write today for your free copies
of bulletin 637 and bulletin 638.
THE DURIRON CO., INC., DAYTON 1, OHIO
Branch Offices in Principal Cities

When inquiring check CP 3072 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

NEW LITERATURE

Pipe conveyors, accessories

40 pages deal with pipe conveyors and accessories. Includes engineering drawings and capacity charts. Cat 5000, issued by Hapman Conveyors, Inc., Dept. CP, 2405 W. McNichols Rd., Detroit 21, Mich. When inquiring specify CP 3075 on handy form, pages 2 and 3.

Catalogs paper-testing machines

Dial micrometers, bursting-strength-testers and basis weight scales are detailed in 4-page, 2-color brochure. Bursting-strength-tester clamps boxboard, paper or fabrics over diaphragm. Hydraulic pressure forces diaphragm against material until rupture occurs. Bursting pressure reading is retained until dial is reset.

Dial micrometers are described as caliper any material under $\frac{1}{2}$ " thick. Basis weight scales are pictured weighing tissue, boxboard, paper; scales give weights for 480 or 500 sheets in lbs. Boxboard scale gives number of sheets in 50-lb bundle.

"Paper Testing Machines", issued by E. J. Cady & Company, Dept. CP, 134 N. LaSalle St., Chicago 2, Ill. When inquiring specify CP 3076 on handy form, pages 2 and 3.

Methods of analyzing fatty materials

Booklet sets forth methods for analysis of fatty materials, as recommended by International Union of Chemistry. Thirty-five pages cover analyses of oleaginous seeds, of fats and oils, and of hard soaps.

"Unified Methods for the Analysis of Fatty Materials", International Union of Chemistry, issued by United States Dept. of Agriculture, Dept. CP, Bureau of Agricultural and Industrial Chemistry, Washington 25, D. C.

Details many types of water hose

Water hose for general service, for high pressure and hot service, for use in areas with corrosive chemicals, and for use in hydraulic sluicing, etc., are pictured and described in 4-page, 2-color bulletin.

Tables give sizes, describe reinforcement, tell weights and working pressures. Cat. Sec. 4800, issued by The B. F. Goodrich Co., Dept. CP, Akron, O. When inquiring specify CP 3077 on handy form, pages 2 and 3.

WHAT'S NEW IN PACKAGING ADHESIVE RESEARCH?

USERS of adhesives find it pays to know what's new, more productive and efficient for labeling, sealing and fabricating operations. They have found extra profits and lowered costs by depending upon Paisley Scientific Adhesive Service for the ONE best Glue, Paste or Cement to meet the exacting needs of their adhesive operations. Write for and return our "Adhesive Operation Data Sheet" for FREE analysis and recommendations.



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Manufacturers of Glues, Pastes, Resin Adhesives, Cements and Related Chemical Products
1770 CALIFORNIA AVE., CHICAGO 16, ILL. • 630 W. 51ST STREET, NEW YORK 19, N.Y.

When inquiring check CP 3073 on handy form, pgs. 2-3



Investigate NEW USES, greater economies in TANTALUM

Tantalum's acid-proof quality and efficiency in heat transfer, combined with its strength, long dependable life, freedom from shutdowns, replacement and repair, set up new measures of economy. Among extremely corrosive materials, as well as HC1, being processed by Fansteel Tantalum equipment with important savings, are: bromine, iodine, hydrogen peroxide, sulphuric acid, perchloric acid. Consult Fansteel Tantalum engineers. Your problems will receive careful and unbiased consideration. Fansteel Metallurgical Corporation, North Chicago, Illinois.

PRODUCTS & SERVICES INCLUDE:
ELECTRICAL CONTACTS
SELENIUM RECTIFIERS
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MOLYBDENUM, COLUMBIUM
COPPER BASE ALLOYS
RESISTANCE WELDING MATERIALS

Fansteel

Acid-Proof
TANTALUM
CHEMICAL PLANT EQUIPMENT



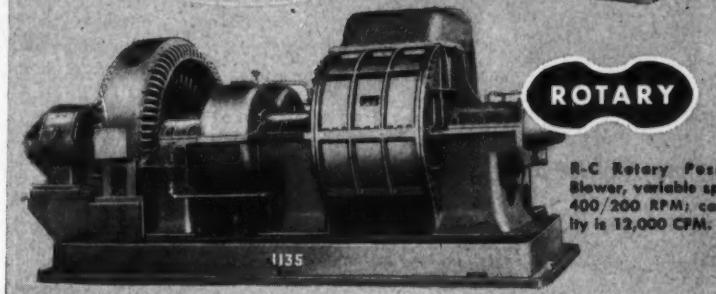
When inquiring check CP 3074 on handy form, pgs. 2-3

SEPTEMBER, 1949

*Freedom of choice
WITH R-C dual-ability*



One of a battery of three type H, multi-stage R-C Centrifugal Blowers; each direct-coupled to 700 HP motor; capacity of each blower is 15,000 CFM.



ROTARY

R-C Rotary Positive Blower, variable speed, 400/200 RPM; capacity is 12,000 CFM.

You're not confined to just one type of blower or exhauster when you bring your air or gas handling questions to us. That's because we build both Centrifugal and Rotary Positive units. You can specify the equipment best suited to the specific job. We are the only blower manufacturer offering this *dual choice*.

R-C *dual-ability* delivers other advantages. Our extensive lines of Centrifugal and Rotary Positive types enable you to match capacities, pressures and other characteristics closely to your requirements—resulting in economies both in first cost and in operating cost.

You can bank on the performance of R-C Blowers, too. Building equipment for handling air and gas has been our only business for almost a century—so we must give complete satisfaction to every customer.

ROOTS-CONNERSVILLE BLOWER CORPORATION
909 Richland Avenue, Connersville, Indiana

ROOTS-CONNERSVILLE



BLOWERS • EXHAUSTERS • BOOSTERS • LIQUID AND VACUUM PUMPS • METERS • INERT GAS GENERATORS

* * * ONE OF THE DRESSER INDUSTRIES * *

When inquiring check CP 3078 on handy form, pgs. 2-3

A NEW COOPER ALLOY SERVICE

For Those Who
USE • DESIGN • SPECIFY
STAINLESS STEEL...

- VALVES
- FITTINGS
- CASTINGS

It's yours
for the
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Write for current issue. Send for it today.

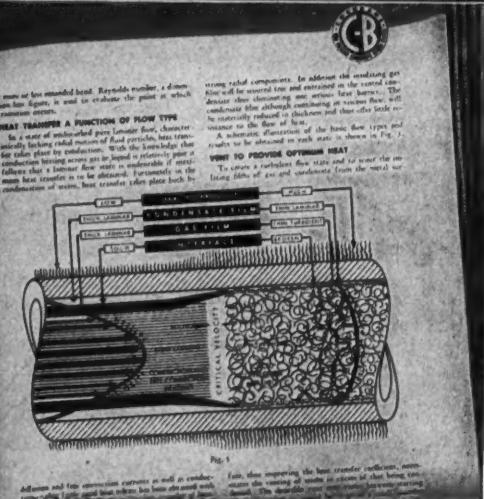
THE COOPER ALLOY FOUNDRY CO.

HILLSIDE, NEW JERSEY

THE WORLD'S LARGEST FOUNDRY DEVOTED
EXCLUSIVELY TO THE CASTING OF STAINLESS STEEL

When inquiring check CP 3079 on handy form, pgs. 2-3

If you use process steam you'll
want this valuable book —



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3162 N. 17th St., Philadelphia 32, Pa.
Please send me a copy of your Publication
No. 3250 on Cochrane C-B System of
Condensate Return

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When inquiring check CP 3080 on handy form, pgs. 2-3

NEW LITERATURE

Water-repelling agent lubricates fire-resistant paper drapes

Use of chlorinated biphenyl in lubricating fire-resistant paper drapes is detailed in 5-page, 2-color bulletin. Described as permanent, stable, and fire-retardant lubricant, the chlorinated biphenyl is set forth as being highly water-resistant, and it is stated that the compound preserves the abrasion-resistance and wet-strength of the paper. Bulletin also contains full instructions on application of lubricant to both plain and coated drapes, and discusses ventilation of process. Treated paper is reported to be non-irritating to the skin.

Tech. Bul. P-138, issued by Monsanto Chemical Co., Dept. CP, St. Louis 4, Mo. When inquiring specify CP 3081 on handy form, pages 2 and 3.

Hydraulic control hose for use from 300 to 5000 psi

Detailed information on hydraulic control hose is contained in 4-page, 2-color bulletin. Table gives specifications, text describes special wire braid, oil-resistant tube and cover.

Reattachable couplings, for replacement of damaged hydraulic control hose, are pictured and discussed. Step-by-step photos demonstrate method of attaching. Other fittings, such as adapter union and pressed-on couplings, are also covered. Equations and sample calculations set forth method of determining hose lengths where hose must be bent.

Cat. Sec. 4030, issued by The B. F. Goodrich Co., Dept. CP, Akron, O. When inquiring specify CP 3082 on handy form, pages 2 and 3.

Low pressure blower air atomizes all fuel oils

Low-pressure-air atomizing oil burners are discussed in 8-page, 2-color bulletin. Cut-away drawings show atomizing method, which is stated to produce complete, fog-like atomization with low-pressure blower air from 8 ozs. to 2 lbs pressure.

Tells how to adapt units to combination oil and gas burning. Charts give air supply pressure in ozs. per sq. in., give cu. ft. of air per min. at 20 oz. pressure for each of several models. Tables give burner capacities, valve capacities, burner dimensions, tile dimensions, specifications of accessories.

Cat. 409, issued by Hauck Mfg. Co., Dept. CP, 124-136 Tenth St., Brooklyn 15, N.Y. When inquiring specify CP 3083 on handy form, pages 2 and 3.

Small synchronous motors for timers, regulators, etc.

Pictures, schematic diagrams and cut-away drawings supplement text of 8-page bulletin on small synchronous motors. Details principles of construction and design which permit instant starting, constantly synchronous operation. Discusses permanent lubrication of bearing and pivot surfaces.

Tables give torque ratings, speeds, and rated watt inputs of light, medium, and heavy duty timing, switching, and controlling motors. Also covers 2 types of instrument movement assemblies. Installation photographs illustrate typical applications.

Let SUPER-SILVERTOP STEAM TRAPS

Put Heat Back In Your

Unit Heaters



SUPER-SILVERTOPS put heat back into cold unit heaters by draining *all* of the water out of unit heaters . . . permitting the steam compartment to be completely filled with dry, hot steam. Super-Silvertops keep water out of units when other traps fail because the presence of water only—regardless of temperature—causes the trap to discharge. There is no loss of steam, even on no-load operation. Get maximum heat—order Super-Silvertops installed today!

HOW TO SELECT STEAM TRAPS FOR UNIT HEATERS

"Solving Steam Trap Problems" describes how to select proper size steam traps for unit heaters of various capacities. Write today for free copy.

THE V. D. ANDERSON COMPANY
1966 West 96th Street • Cleveland 2, Ohio

When inquiring check CP 3084 on handy form, pgs. 2-3



Many plants in the chemical industry are faced with the problem of securing continuous dust recovery with constant air volumes. This cannot be achieved when dust filter sections must be shut down for cleaning or rapping.

**THE NEW
DAY Autoclean DUST FILTER
IS THE ANSWER**

The **DAY** "Autoclean" Dust Filter was designed for industries requiring continuous automatic filtering with constant air volumes. Installations are operating successfully with air to cloth ratios of 15 or 20 to 1, and with back pressures of only 1 to 2 inches water gauge. Such performance is achieved by continuous reverse jet cleaning and the type of filtering felt used.

Write to **DAY**
for New "Autoclean"
Dust Filter Bulletin No. 491



The DAY Company
852 3rd Avenue, N.E., Minneapolis 13, Minnesota
IN CANADA Box 70, Fort William, Ontario
Branch Plants in El. Worth, Buffalo and Welland, Ont.

When inquiring check CP 3085 on handy form, pgs. 2-3

NEW LITERATURE

Bul. IS-100, issued by Telechron, Inc., Dept. CP, Ashland, Mass. When inquiring specify CP 3086 on handy form, pages 2 and 3.

Power booster conveyors save time, labor

Mobile booster conveyors are pictured carrying coarse materials up 38° inclines, feeding packages from one floor to another, boosting cartons on gravity conveyor line, etc. Tells that all models; bulk, bulk and package, and package types; are supplied as mobile or as stationary units.

Eight-page, 2-color bulletin contains tables giving full specifications and capacities of all models, suggests many uses, gives several case histories which tell of labor savings effected by use of booster conveyors.

Cat. 495, issued by Conveyor Division, Lake Shore Engineering Co., Dept. CP, Iron Mountain, Mich. When inquiring specify CP 3087 on handy form, pages 2 and 3.

Takes uniform samples from continuous material streams

Automatic samplers, designed to remove uniform sample cuts from continuous material streams at regular intervals, are detailed in 8-page bulletin. Samplers are supplied with 2 cutter heads, one for sampling dry materials, and the other for taking samples from streams of wet materials.

Text and photographs outline operating principle of samplers, and many diagrams show typical sampling arrangements for use with wet and dry material streams. Schematic diagrams give dimensions and identify parts.

"Automatic Samplers", bul. 47, issued by Hardinge Company, Inc., Dept. CP, 240 Arch St., York, Pa. When inquiring specify CP 3088 on handy form, pages 2 and 3.

Packaged drives provide 20-1 stepless speed control

Complete, packaged unit, designed to provide 1/4 or 1/2 hp with remote, stepless speed adjustment and control, is illustrated and described in 2-page, 2-color brochure.

Both armature and field are supplied with power from grid-controlled, full-wave rectifier. Stated to maintain speed with 2% of any setting over entire speed range. Has speed range of 20 to 1; units have base speeds of 1200, 1800, and 3600 rpm.

Bul. 860, issued by The Brown-Brockmeyer Co., Dept. CP, Dayton 1, O. When inquiring specify CP 3089 on handy form, pages 2 and 3.

Forged steel casters supplied in 5, 6 and 8" sizes

Complete information on manufacturer's new line of forged-steel casters is contained in 4-page bulletin. Available in 5, 6, and 8" sizes, casters are pictured in typical applications.

Photographs of component parts illustrate forged-steel top plate, main load bearing, 1-piece forged-steel horn with bearing seat, Timken thrust bearing, slotted nut for precision adjustment and forged-steel wheel.

"Heavy-duty Casters", issued by The Bassick Co., Dept. CP, Bridgeport, Conn. When inquiring specify CP 3090 on handy form, pages 2 and 3.

Here is
Plain PROOF...

That the
CONCAVE SIDE
(U. S. Patent No. 1813698)
SAVES Transmission DOLLARS

You can actually feel
the sides of a belt change shape
as the belt bends.

When a *straight-sided* V-Belt bends around a pulley, three things are bound to happen.

(1) The top of the belt, being under tension, *narrows*. (2) The body of the belt, under compression, *widens*. (3) The sides of the belt *bulge out*.

These *shape changes* are inevitable. They are shown in figures 1 and 1-A, below.

Fig. 1
Straight-Sided V-Belt.

Fig. 1-A
How Straight-Sided V-Belt Bulges in Sheave-Groove.

Because this bulging belt does not fit the sheave groove, two facts become clear. (1) The belt will get excessive wear where it bulges—*shorter life!* (2) The whole side of the belt cannot uniformly grip the pulley—a *loss in drive efficiency*.

How different the V-Belt with the precisely engineered *concave side* (U.S. Patent No. 1813698)—the Gates Vulco Rope. As this belt bends it assumes a shape that *exactly* fits the sheave groove. (Figures 2 and 2-A, below.)

Fig. 2
Gates Vulco Rope with Concave Side.

Fig. 2-A
No Side Bulge. Precise Fit in Sheave-Groove.

The Gates Vulco Rope with the *concave side* is *designed to fit the sheave groove*. It's *designed to grip the pulley*. It's *designed to last longer*. It's *designed to save transmission dollars*.

Gates
GATES, U. S. PAT. OFF.
The Mark of SPECIALIZED Research

The Concave Side is MORE IMPORTANT NOW Than Ever Before

Because the sides of a V-Belt are what actually drive the pulley it is clear that any increased load on the belt means a heavier load that must be transmitted to the pulley directly through the belt's sidewalls.

Now that Gates SPECIALIZED Research has made available to you SUPER Vulco Ropes—carrying fully 40% higher horsepower ratings—the life-prolonging Concave Side is naturally more important in conserving belt life today than ever before.

GATES VULCO ROPE DRIVES
Engineering Offices and Jobber Stocks
IN ALL INDUSTRIAL CENTERS

of the U. S. and
71 Foreign Countries
THE GATES RUBBER COMPANY
DENVER, U. S. A.

"The World's Largest Makers of V-Belts"

When inquiring Check CP 3091 on handy form, pgs. 2-3

KEEP CHEMICALS
PURE
AND
DRY

Economically with...



HAMMOND

MULTI-WALL BAGS

Chemicals are kept pure and dry when shipped in dependable, moisture-proof Hammond Multi-Wall Bags. Printed with smart designs in bright colors, these bags help to build prestige and consumer acceptance for your products. Furnished in sewn, pasted, open mouth or valve type to suit your needs.



Write for your copy
of this booklet TODAY!



HAMMOND BAG and PAPER CO.
GENERAL OFFICES: WELLSBURG, W. VA.
Plants in Wellsburg, W. Va., and Pine Bluff, Ark.

When inquiring check CP 3092 on handy form, pgs. 2-3



SPRACO NOZZLES



Write for NOZZLE CATALOG to
SPRAY ENGINEERING CO.

125 CENTRAL STREET • SOMERVILLE 45, MASS.

When inquiring check CP 3093 on handy form, pgs. 2-3

Page 80

NEW LITERATURE

Hot-melt cement repairs glass lab. equipment, seals tubing

Leaflet describes properties and applications of hot-melt cement which adheres to non-porous surfaces, has low vapor pressure. States that cement can be easily applied with metal spatula, will form leakproof connections between glass and various types of tubing connections.

Adheres to carbon plate, porcelain, glass, metal, wood, stone, plastics, tile, paper, asbestos, synthetic rubbers, and other materials, literature reports, and can be stripped from warmed surfaces and reused.

Cement is said to resist dilute acids, alkalis, salt solutions. List of typical applications is given. Cat. V-22, issued by The Varnitron Co., Dept. CP, 416 N. Varney St., Burbank, Calif. When inquiring specify CP 3094 on handy form, pages 2 and 3.

Automatic heat control to 2500° avoids overheating of materials

Destruction of valuable materials due to overheating of furnace while attendant "was gone for a minute" can be prevented economically and effectively, according to literature on automatic heat control up to 2500°. Units are described as dependable, regardless of heat-source, on all hand-controlled furnaces.

Pictured and described are indicating, indicating and controlling, indicating and limiting pyrometers; also thermocouple switches, portable pyrometers, various sizes of panel indicators. Literature emphasizes no vacuum tubes, no motors, and positive contact. Four-page illustrated Technical Bul. SP-10, issued by Assembly Products, Inc., Dept. CP, Main at Bell Sts., Chagrin Falls, O. When inquiring specify CP 3095 on handy form, pages 2 and 3.

Eliminate speed error between coordinated motor drives

Precise speed control for coordinated motor drives is discussed in 2-page brochure. Exposed view of differential gear unit illustrates method by which field rheostat, small reference motor, and drive motor are interlocked to maintain correct relation between sections of motor drives. Slightest differences in speed between section motor and reference motor are reported to change field rheostat setting to exactly correct difference.

Many photographs demonstrate typical applications on gum labelers, paperboard machines, rubber, plastic, and paper calender rolls, etc. Bul. K-2325, issued by Reliance Electric & Engineering Co., Dept. CP, 1076 Ivanhoe Rd., Cleveland 10, O. When inquiring specify CP 3096 on handy form, pages 2 and 3.

Compact welding unit for maintenance service

Small, self-contained welding unit, constructed for all types of welding within the capacity of a 5/32" rod, is described, pictured in 2-page, 2-color brochure. Approved by Underwriters Laboratories, units include complete power unit, electrode holder with power line, ground clip with line, ammeter, and operator's helmet. Operates on 110 or 220 volt AC lines. Easily carried to desired location.

Welding range is from 15 to 170 amps, with stepless current-control bar. Two or more machines may be coupled together for very heavy welding. States that welding in

"How-to-heat" notes

For Low-cost, Efficient

LIQUID HEATING



FOR WATER



FOR OIL



FOR ELECTROPLATING BATHS

For water, oil, electroplating baths, and many mild chemical solutions, you're almost sure to find a G-E Calrod* immersion heater to provide you the most practical and economical means of heating. Available in a wide range of sizes and ratings, and with thermostatic controls, G-E "screw-in" and "over-the-side" immersion heaters are easily adaptable to many of the low-temperature industrial tanks, kettles, and baths. You'll find these durably constructed heaters easy to install, low on maintenance, and moderately priced.

BULLETIN GEA-5077
AND CATALOG GED-650C
ARE PACKED WITH HUN-
DREDS OF HEATING
IDEAS. SEND FOR YOUR
COPY. General Electric Company,
Schenectady 5, N. Y.

*Reg. U.S.
Pat. Off.

GENERAL  ELECTRIC

When inquiring check CP 3097 on handy form, pgs. 2-3

FILTER BASE HEADQUARTERS

A TYPE FOR
EVERY NEED

Cotton
Wool
Paper
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Glass
Asbestos
Rubber
Woven Metals
and special
types for
special needs.

D. R. SPERRY & CO.

BATAVIA, ILLINOIS

Filtration engineers for over 50 years

SPERRY
FILTER BASES

When inquiring check CP 3098 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

NEW LITERATURE

any position is possible. "Model 170", issued by Birdsell Mfg. Co., Dept. CP, 500 San Antonio Rd., Los Altos, Calif. When inquiring specify CP 3099 on handy form, pages 2 and 3.

Coordinate all process equipment with centralized electric control

Many case histories outline results of installation of centralized electrical control. Twelve-page, 3-color bulletin gives details of control functions in large foundry. Pictures and text show how centralized control system feeds complicated batches to two mullors, controls cycles, coordinates and sequences automatic hoists and conveyors, and provides for manual control of all or part of the process when necessary.

Short notes and pictures of 8 other case histories are also provided. Demonstrates savings of time and labor which can be made with incorporation of single, convenient control system. Bul. 6148, issued by Richardson Scale Co., Dept. CP, Clifton, N. J. When inquiring specify CP 3100 on handy form, pages 2 and 3.

Characteristics, operation, uses of large induction motors

Heavy-duty induction motors are comprehensively discussed in 32-page, 2-color bulletin. Profusely illustrated, publication covers fundamentals of alternating current, characteristics of induction motors, how induction motors operate, starting methods for induction motors, and induction motor control.

Nearly 50 graphs and diagrams accompany the text, showing hp ratings, speed and torque relationships, details of construction and operation, wiring methods, etc. Syncronizer No. 28, issued by Electric Machinery Mfg. Company, Minneapolis 13, Minn. When inquiring specify CP 3101 on handy form, pages 2 and 3.

Paper covers techniques of inert-gas welding

Sixteen-page paper offers comprehensive discussion of inert-gas, shielded-arc welding. Describes process, gases and electrodes used, and points out suitability of straight and reversed polarity operation for different jobs. DC and AC equipment is compared, control of gas flow is discussed, and techniques used in welding stainless steel, aluminum, copper, magnesium, steel, and other metals are detailed. Includes many photographs, 3 tables.

"Practical Aspects of Inert-gas Welding", by H. A. Huff, Jr., and A. N. Kugler. Issued by Air Reduction Sales Co., 60 E. 42nd St., New York 17, N. Y. When inquiring specify CP 3102 on handy form, pages 2 and 3.

Small rotary actuator has right angle take-off

Four-page, 2-color bulletin carries dimensions, performance curves, wiring diagram and specifications for right angle rotary actuator. Miniature motor is reversible, magnetically braked, and has provision for controlling number of shaft revolutions.

"Rotorac", issued by Airborne Accessories Corp., Dept. CP, 25 Montgomery St., Hillside 5, N. J. When inquiring specify CP 3103 on handy form, pages 2 and 3.

VESSEL DIVISION

NEWS

A. O. SMITH CORPORATION

75th ANNIVERSARY 1866-1941

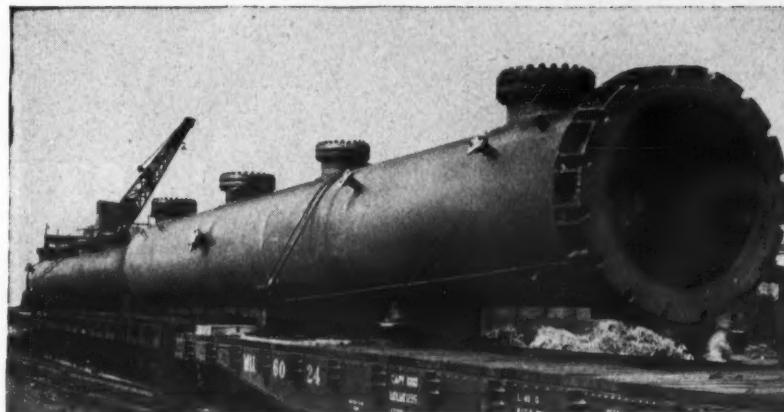
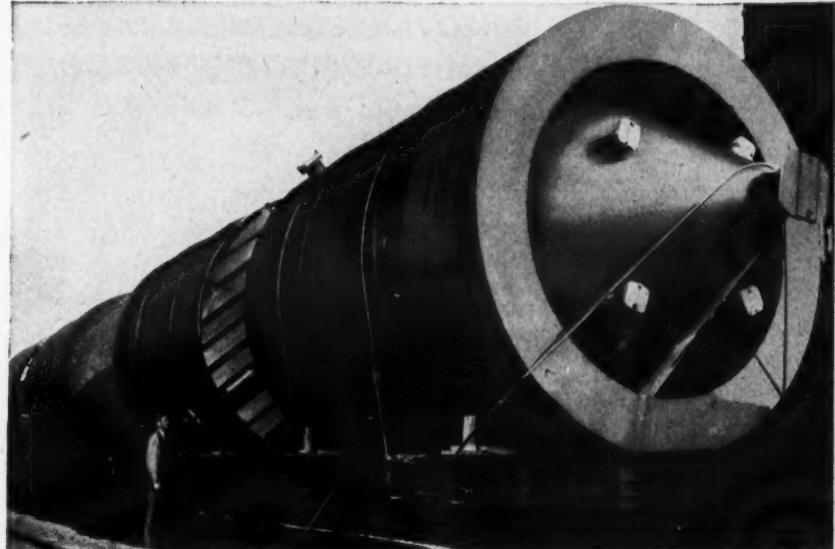
New York 17 • Philadelphia 5 • Pittsburgh 19 • Atlanta 3 • Chicago 4
Tulsa 3 • Dallas 1 • Houston 2 • Seattle 1 • Los Angeles 14
International Division: Milwaukee 1

INTO EVERY SMITHlined FAT-SPLITTING TOWER, like the above 68-ft.-long SMITHway Tower, goes the experience and knowledge gained from a long and extensive program of research and development into the corrosion problems of the Fatty Acid Industry.

THREADING A NEEDLE.

Getting a 12 ft. dia. by 43 ft. long paper mill replacement digester into an existing building is a difficult feat. A. O. Smith did it by shipping the SMITHlined Digesters in sections for final assembly and welding in place inside the paper mill.

 **A. O. SMITH MAKES ALL TYPES OF OIL-REFINING PRESSURE VESSELS.** Here is one type, a SMITHlined Absorber Tower three railroad cars long (approximately 107 ft. long), leaving for a refinery in Ohio.



NEW BULLETINS

Write the nearest A. O. Smith office listed at the top of this page for these new A. O. Smith Bulletins:

FIELD ASSEMBLY OF PRESSURE VESSELS — Bulletin V-44.

SMITHway VESSELS, Alloy, Alloy-Lined, Clad, and Glass-Lined — Bulletin V-46.

When inquiring check CP 3104 on handy form, pgs. 2-3

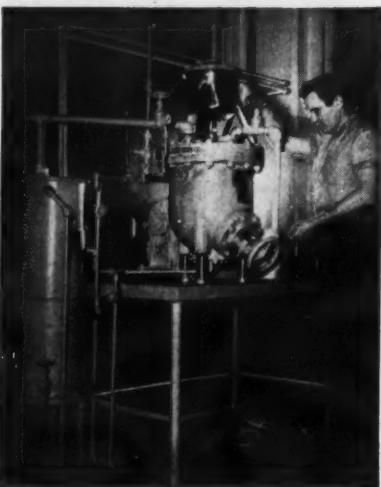
BUFLOVAK-DOPP PROCESSING KETTLES Efficiently Serve Many Industries

YOUR product can be processed in this Dopp Kettle that is installed in the BUFLOVAK Research and Testing Laboratory.

Larger equipment is also available.

Results are positive because they are conducted on a pilot plant scale.

Write for particulars.



BUFLOVAK EQUIPMENT DIVISION
of BLAW-KNOX COMPANY
1645 Fillmore Ave. Buffalo 11, N. Y.

When inquiring check CP 3105 on handy form, pgs. 2-3

BUFLOVAK-DOPP Processing Kettles are used for thorough mixing of a wide range of chemical and food products.

Performance records show considerable savings in steam, power and operating time.

Exclusive features in design and construction assure uniform mixing, heating and cooling. The result is a better, more uniform product, produced at lower cost!

Complete details upon request.

NEW LITERATURE

Pictures, describes several new paper-testing machines

Two-page publication discusses 6 new paper-testing machines. Announces availability of heavy duty Elmendorf Tearing Tester which has 4 times capacity of standard tearing tester. Supplied with augmenting weights if desired.

Describes plup classifier which makes 5 fractions in less than 5 min., and which is easy to dump, clean and recharge. Pictures electric hygrometer which gives moisture vapor permeability of paper in hours instead of in days or weeks. Also discusses zero span jaw for measuring orientation of fibers in paper, and tells of precision sample cutter which produces samples of recise size without nicking or pulling.

Form 4905, issued by Thwing-Albert Instrument Co., Dept. CP, Pulaski Ave. at Penn St., Philadelphia 44, Pa. When inquiring specify CP 3107 on handy form, pages 2 and 3.

How to service and maintain air and hydraulic devices

Comprehensive instructions and advice on the installation and maintenance of pneumatic and hydraulic devices are contained in 20-page booklet. Subjects covered include air and hydraulic valves, air and hydraulic cylinders, hydraulic power units, air and hydraulic lines and power chucks.

Precautions are made against specific practices; instructions and advice on operation, installation, and servicing are provided; suggestions are made as to what might cause certain common failures.

"Air and Hydraulic Devices", Form 16, issued by Logansport Machine Co., Dept. CP, Logansport, Ind. When inquiring specify CP 3108 on handy form, pages 2 and 3.

'Problem' items easily moved on roller conveyors

Gravity conveyors employing sturdy, lightweight rollers are covered in 8-page, 2-color bulletin. Types are listed as supplied with rollers above or below frame as required, in wide range of roller spacings. Tables give capacities and dimensions of straight and curved sections. Cut-away drawings show construction features. Many installation photographs illustrate varied uses.

Includes pictures and descriptions of many accessories, such as hinged sections, package stops, guard rails, stands, etc. Form RWC-48, issued by The Rapids-Standard Co., Inc., Dept. CP, Dept. RC-143, 342 Rapistan Bldg., Grand Rapids 2, Mich. When inquiring specify CP 3109 on handy form, pages 2 and 3.

Raise tensile strength, tear resistance of butyl rubber

New surface-treated lithopone, which shows promising results in butyl rubber, is detailed in 3-page technical service bulletin. Describes lithopone as imparting higher tensile strength, better tear resistance to butyl rubber compounds. Suggests applications in red inner tube and wire insulating compounds, where use of carbon black is precluded.

Tables give tensile strength, percent elongation, tear resistance, modulus, hardness, and permanent set of different compounds after differing cure conditions. Bul. D-1-A-4, issued by The New Jersey Zinc Sales Co., Dept. CP, 160 Front St., New York 7, N. Y. When inquiring specify CP 3110 on handy form, pages 2 and 3.

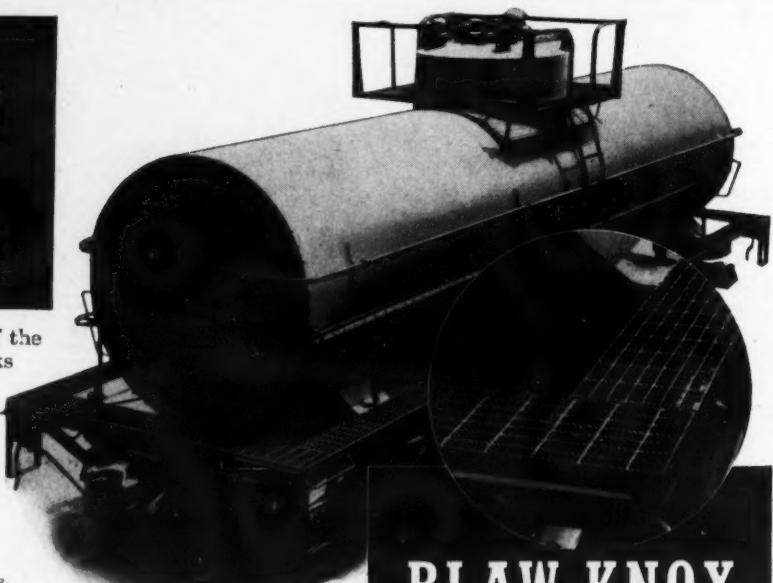


Whether yours is the responsibility of the tank car builder, or the work and risks of the tank car riding trainman, you will appreciate the safety of Blaw-Knox Electroforged Steel Running Boards, Brake Steps, and Platforms. Note also the one-piece welded construction, easy installation, easy replacement, and open self-cleaning feature.

Quick delivery to your specifications.

Write for Bulletin No. 2228

BLAW-KNOX DIVISION
of Blaw-Knox Company
2076 Farmers Bank Bldg., Pittsburgh 22, Pa.
Representatives in Principal Cities



BLAW-KNOX
ELECTROFORGED STEEL
RUNNING BOARDS
FOR TANK CARS

When inquiring check CP 3106 on handy form, pgs. 2-3

NEW LITERATURE

Test insulation resistance with proper megger

Eight-page, 2-color bulletin gives types and most suitable uses of insulation resistance testers. Discusses proper ranges and voltages for different applications; comments on technique of testing insulation resistance while insulation is drying out. Hand-generator, motor-driven, and rectifier-operated sets are covered, and advice is given on most suitable applications of variable-voltage and of constant-voltage meggers. Handy selection chart gives voltage output and resistance ranges of complete line of instruments.

Many practical suggestions give typical uses of instruments. Bul. 21-05-62, issued by James G. Biddle Co., Dept. CP, 1316 Arch St., Philadelphia 7, Pa. When inquiring specify CP 3111 on handy form, pages 2 and 3.

Quick, positive removal of scum, sludge from wastes

Smooth-settling clarifiers, for use in pollution control systems, are thoroughly discussed in interesting, 16-page, 2-color bulletin. Design which eliminates conflicting eddies, speeds settling, is described; unique, positive-action scum removal unit is detailed. Large-volume and small-volume clarifiers are pictured in operation. Cut-away diagrams illustrate design and operating principles.

Calm surface operation is discussed; economical peripheral drive is explained. Specifications and schematic drawings are included. "Quiescent Clarification", issued by Infilco, Inc., Dept. CP, 325 W. 25th Pl., Chicago 16, Ill. When inquiring specify CP 3112 on handy form, pages 2 and 3.

Handy calculator shows sizes, capacities of storage tanks

Handy slide-rule type calculator shows storage capacity in gallons and in cu. ft. of tanks from 10 to 100' in height, and from 20 to 120' in diam. Also gives capacity in barrels for tanks of any specified size.

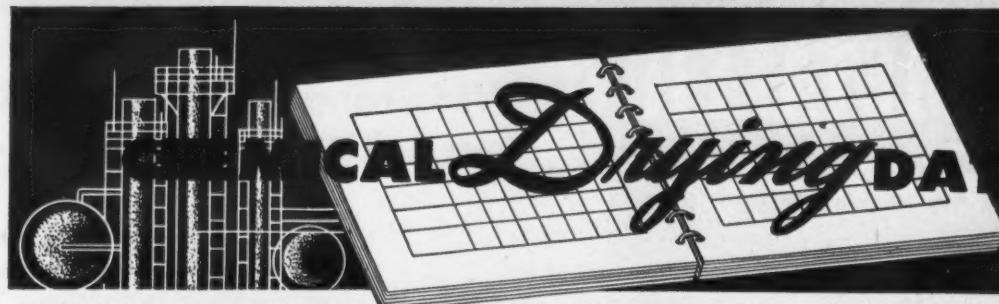
Slot on reverse side of calculator gives decimal equivalents in ft. of fractions of inches from $\frac{1}{8}$ " to $11\frac{1}{8}$ ". Table provides equivalent measures of gallons, cu. ft., and barrels, with weights as water. Weights of steel plates of different thicknesses are also supplied.

"Tank Capacity-Size Calculator", issued by Hammond Iron Works, Dept. CP, Dept. CPR, 630 Fifth Ave., New York 20, N. Y. When inquiring specify CP 3113 on handy form, pages 2 and 3.

Refrigerant-charging hose withstands flexing

Six-page, 2-color folder describes steel-lined, neoprene-jacketed hose for carrying Freon, methyl chloride, sulfur chloride. Cut-away photos show convoluted steel tube, neoprene packing, and cotton braid construction. States that hose is liquid-tight, does not kink, withstands repeated flexing and torque, will not collapse, and resists chemical action. Supplied with male couplings at each end, female couplings at each end, or with one male and one female coupling; all couplings are brass.

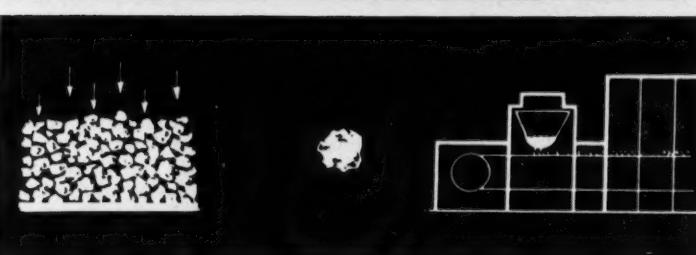
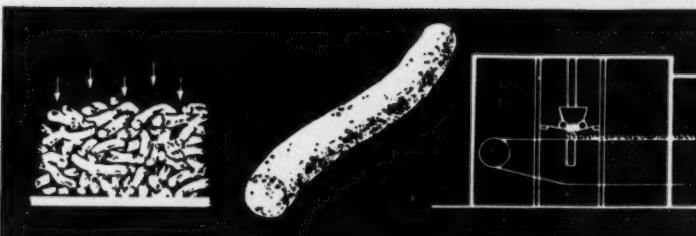
"Refrigerant Charging Hose", issued by Chicago Metal Hose Corp., Dept. CP, Maywood, Ill. When inquiring specify CP 3114 on handy form, pages 2 and 3.



17

PUBLISHED MONTHLY FOR PROCESS INDUSTRIES EXECUTIVES AND OPERATING PERSONNEL

PREFORMING FEEDS COMBINE WITH PROCTOR CONTINUOUS DRYING SYSTEMS TO INCREASE OUTPUT AND IMPROVE QUALITY



Diagrammatic illustrations above show in each case—Left: air circulation through bed of preformed material on dryer conveyor. Center: actual size of preformed product. Right: relation of feed to dryer conveyor. Types of preforming illustrated are—Top: Fin drum. Second: rolling extruder. Third: granulator. Bottom: scoring on the filter.

When Proctor continuous conveyor drying systems are combined with any one of the patented preforming feeds that have been developed by Proctor engineers, not only is drying speeded and output increased—but often the quality of the product is improved. These systems often lend themselves to applications of higher operating temperatures than normally used in existing systems with resultant rapid drying rates and subsequent improved quality of product. This is accomplished by use of the preforming feeds to obtain small cross sectioned pieces which allow a porous bed of material to be laid down on the conveyor of the dryer.

No flat statement can be made to indicate when any one preforming feed is best suited. Only a careful study of a given product under laboratory tests will reveal to which type of preforming it is best suited—if any. Generally speaking, the fin drum feed is employed where a product is too moist to hold a given shape without some further moisture reduction; the extruder feed for products that will hold a definite shape after extrusion; the granulator feed for lumpy or granular materials, as well as hard framed press cake; scoring on the filter for products with about the same consistency as starch.

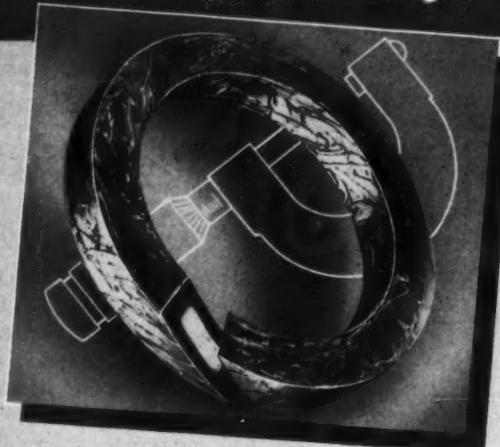
For further information of this type of drying, write for current literature. If you have an immediate drying problem and will write to Proctor engineers about it—they will study it for you at no cost to you.

Much Proctor drying equipment and textile machinery is covered in full or in part by patents or patents pending.

When inquiring check CP 3115 on handy form, pgs. 2-3

DURAMETALLIC

Packings



PRECISION made die-molded packing rings by Durametallic present 3 points of sealing satisfaction:

1. They provide a perfect fit for your stuffing box.
2. They save time, labor and eliminate waste.
3. They are tailor-made to insure a more accurate packing installation.



Write today for Your Copy of File No. DMCP

Containing illustrated bulletins on Durametallic Packings — with specifications and data toward answering your sealing problems.

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SAN FRANCISCO • SEATTLE • TULSA • YOUNGSTOWN, O.

When inquiring check CP 3116 on handy form, pgs. 2-3

Page 84

Wide-range Metering of Chlorine into Water without Changing Orifices, Scales

Chlorine feeder automatically or manually controlled; includes devices for assuring safe operation

USES: Meters chlorine gas and delivers chlorine-water solution to point of application.

Features: Meters the gas within range of 100 to 10% of rated capacity without changing orifices or scales. Automatic safety devices stop flow of chlorine if any condition occurs that affects safe, accurate operation. Circulating tray-water used in producing solution eliminates tray-produced chlorine odors. Vital control parts handle only dry, inert chlorine, not solutions. Each major element is self-contained and may be readily replaced as a unit.

All parts are made of materials known to be highly resistant to corrosion and erosion in the particular service for which they are used. Adapted to semi-automatic, program or automatic proportional operation by simple addition of attachments to basic manual unit. These changes can be made in the field if desired. Rate-of-flow recorders can be incorporated in the same manner.

Description: Diagram shows how chlorine gas feeder operates. Of course, in an actual unit all parts are enclosed in cabinet with control and indicating elements on outside. Chlorine gas flows from cylinder, through filter holding drying medium, through pressure gauge and into chlorine control valve. After it passes control valve, it goes through a constant orifice, a flow indicator and another filter (pressure has been reduced in control valve), then into bell jar. Actually, chlorine is under vacuum from the control valve to the water-operated injector.

From bell jar, gas is drawn through standpipe into suction side of injector, excess vacuum created by injector being satisfied by small amount of makeup water supplied from tray. Height of standpipe in bell jar limits and maintains constant vacuum throughout system. Float-operated valve holds constant level in tray.

Since both orifice and vacuum are constant, rate of chlorine feed is determined by pressure of gas in chlorine control valve. Thus, changes in water pressure on underside of diaphragm in valve — these changes being made by adjustment of chlorine rate control valve in water-line — create corresponding pressure changes in chlorine gas pressure on upper side of diaphragm and, in this way, control gas feed rate.

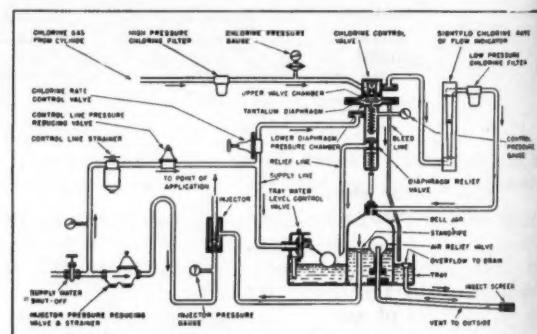
A manually operated unit can be run from water at reasonably constant pressures above 20 psi when the solution is to be discharged at atmospheric pressure. When discharged against back-pressure, operating water should be at higher pressure. Booster pumps can be used to increase water pressure if necessary.

Bell jar assembly is suspended from diaphragm relief valve in lower part of chlorine control valve by a spring-supported rod. When there is no vacuum in system, spring overcomes weight of bell jar assembly because there is less water in it, and relief valve opens to prevent buildup of pressure on diaphragm and feeding of chlorine. When vacuum is built up to sufficient

value, weight of bell jar assembly increases until it closes relief valve, increasing water pressure on diaphragm and permitting feeding of chlorine.

Air relief valve prevents escape of gas to room in case chlorine control valve should leak. Bottom of relief valve, which consists of flask over air relief pipe, is above bottom of open bell jar so that the gas, taking path of least resistance, will pass out through vent to atmosphere rather than break water seal around bottom of jar.

This same relief valve prevents entrance of water into dry chlorine system if vacuum becomes exceptionally high. Flask rises with water in bell jar until bottom of flask is above level of tray water, whereupon air is drawn in from outside vent to satisfy the excess vacuum and preventing water from rising further.



Illustrates principle of operation of chlorine feeder

The Sightflo rate of flow indicator measures all of the gas passing through apparatus. The 10" scale has linear characteristic. Pressure gauge which indicates control pressure is in effect a differential type chlorine flow indicator because the orifice and vacuum are maintained constant. Thus the unit has, in effect, 2 types of gas flow indicators.

Source: Model CVS Chloronizer is a development of Builders-Providence, Inc., Dept. CP, Providence 1, R. I. . . or for more information check CP 3117 on handy form, pages 2 and 3.

Heavy mixers are supplied open or dust-proof . . .

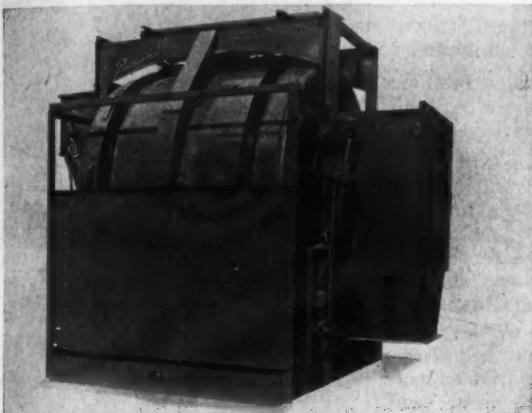
units available for mixing fertilizer, glass batches, enamel frits, drugs, dusts, plastics, liquids, etc.

Uses: For efficient mixing of drugs, ores, liquids, dry batch materials, dusts, etc.

Features: Available with open or dust-sealed construction. Mixing action prevents stratification of ingredients.

*long
sent*
Description: Line of mixers are available in many sizes, with either open or dust-sealed construction. Fertilizer mixers have $\frac{1}{2}$ -ton, 1-ton and 2-ton capacities; glass batch mixers have capacities ranging from 13 to 110 cu. ft.

Other mixers, for mixing and coating of dry items, for mixing furnace charges, for mixing liquids, dusts, dyes,



Mixer with dust-proof housing over discharge chute

enamel frits, etc., may be equipped with accessories such as elevating power loaders, liquid measuring tanks, automatic pneumatic controls, controlled discharges, etc.

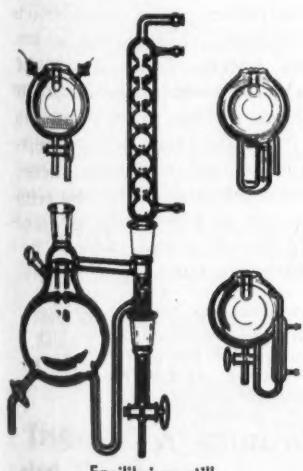
Source: Ransome pumps are manufactured by Worthington Pump and Machinery Corp., Dept. CP, Harrison, N. J. . . or for more information check CP 3118 on handy form, pages 2 and 3.

Improved determinations of vapor-liquid equilibrium with new still . . .

equipment is latest development of Dr. D. F. Othmer, of Polytechnic Institute, Brooklyn, N. Y.

Uses: For accurate and convenient determination of vapor-liquid equilibrium.

Description: Operation is based on the reflex equilibrium principle. Vapors in equilibrium with the boiling liquid mixture in the boiler are completely condensed into a distillate trap, and overflow from trap is refluxed to the boiler.



Equilibrium still

When the composition and quantity of vapor leaving boiler is exactly equal to the composition and quantity of distillate returning to boiler, equilibrium is established, and the boiling point remains constant under the total pressure imposed on the system.

Samples of the liquids in boiler and trap are then removed for chemical or physical chemical analysis to determine the compositions of

the respective liquid and vapor phases in equilibrium.

Source: Emil Greiner Co., Dept. CP, 20-26 North Moore St., New York 13, N. Y. . . or for more information check CP 3119 on handy form, pages 2 and 3.



For All Fume or Dust Collection

Norblo Stars

THERE are three basic types of Norblo fume and dust collectors—all of them designed and fabricated in our own shops. Norblo equipment for industrial dust control is outstanding for efficiency with low cost in heavy duty continuous service such as smelting, cement and rock products, chemical processing.

Norblo also makes portable and semi-portable dust collector units. Ask for catalog.

If you have a dust problem or dust creating process that needs control, write us for free suggestions based on 30 years experience.

The Northern Blower Co.

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Photographic Film
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Gun Powder
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The Kathabar System WILL CONTROL IT!

Humidity problem? Ask a Kathabar Humidity Engineer to tell you all the facts about the Kathabar System... how it will provide just the desired grains of moisture, or percent of relative humidity best suited for the specific processing application... the simplicity and dependability of the Kathabar System—proven in over 300 installations... how it can reduce and possibly eliminate refrigeration tonnage... how it works independently of temperature... how it eliminates condensation in pipe galleries and prevents frost on low temperature refrigeration coils. There are hundreds of applications in the process industries where the Kathabar System of humidity control will operate profitably.

Truly, the Kathabar System is the better way to air condition wherever humidity is a problem.

RETURN THIS COUPON

Send booklet on Industrial and Comfort Humidity Conditioning.
 Have Kathabar Humidity Engineer call. No Obligation.

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SURFACE COMBUSTION CORPORATION • TOLEDO 1, OHIO

When inquiring check CP 3121 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Ball bushings provide rolling support for 1 1/2" guide rods . . .

linear ball bearings have much greater load ratings

Uses: To give anti-friction support to linear motions along 1 1/2" diameter guide rods or reciprocating shafts.

Features: Length of stroke is unlimited. Precision alignment is maintained over long periods since free rolling ball-bearing principle eliminates sliding friction.

Many lubrication problems normally inherent with guide rods are solved, since rolling ball principle is not dependent upon a grease film for free action.

Description: New ball bushings have substantially greater load rating than previous ball bushings. Outside diameter is 2.375"; overall length is 3.00". Tolerances, load ratings and other data are given in "Guide Rod Ball Bushings" bulletin.

Source: Product of Thomson Industries, Inc., Dept. CP, Manhasset, Long Island, N. Y. . . . or for more information check CP 3122 on handy form, pages 2 and 3.

Complete removal of tramp iron assured by uniform magnetic field . . .

separator's circumferential pole design gives even pull across drum width; used on chutes, conveyors

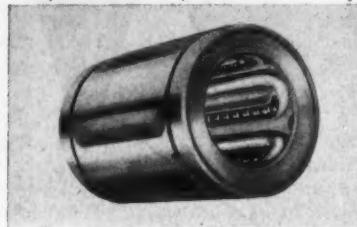
Uses: Designed for installation at end of chutes, spouts and conveyors to remove tramp iron from chemicals, coal, sand, metals, plastics, rubber, glass, powders, etc.

Features: Circumferential pole design gives uniformity of magnetic field across the drum width; adjustable dual-purpose leveler and burden feed control. Non-magnetic wear-and-abrasion resistant manganese-alloy steel drum shell revolves on sealed, self-aligning ball-bearings while non-electric Alnico magnet inside drum shell remains stationary.

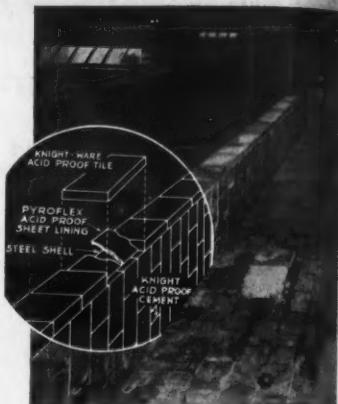
Magnetic material flows over drum shell in a normal trajectory. Tramp iron holds fast to the drum, due to magnetic pull, and drops off when it passes out of the magnetic field.

No discharge aids are necessary. There is no drum shell wear from adhering tramp iron.

Description: Magnet itself requires no wiring, no



Ball bushing for 1 1/2" guide rods



This Tank Will Live to a Ripe Old Age

It's PYROFLEX-Constructed

Pickling tanks lead a tough life. The Pyroflex-Constructed Pickling Tank above is in use in a continuous strip steel line in a large Ohio steel mill. It is subject to constant attack by acids, steam and other corrosive agents. To make this tank completely corrosion proof, Knight engineers installed Pyroflex sheet lining heat bonded to the steel shell, then covered with acid-proof brick set in Knight acid-proof cement. The result is a tank completely resistant to this highly corrosive type of service.

However, Pyroflex Construction is not always composed of these same materials. In designing various corrosion proof constructions such as tanks, chlorinating towers, floors, sewers, fume ducts, etc. Knight engineers may incorporate ceramics, carbon, glass, plastics or any other materials best suited to the individual situation. Consequently Pyroflex-Constructed units live to a ripe old age with less "down time" and lower maintenance costs.

When making inquiry regarding Pyroflex Constructions, please specify type of equipment in which interested, service conditions involved, etc.

MAURICE A. KNIGHT

409 Kelly Ave., Akron 9, Ohio

Acid and Alkali-proof Chemical Equipment

When inquiring check CP 3123 on handy form, pgs. 2-3

Silicone News



NEW CURE for BOIL OVERS



DC ANTI FOAM A in a concentration of 1 to 600,000 parts of tar emulsion prevents foaming during evaporation.

Major utility companies, like Central New York Power Corporation, operate water gas plants in conjunction with their coking operation and produce tar as a by-product. In their Utica plant, tar is supplied to the evaporating stills in the form of a water emulsion. Considerable evaporation is necessary to produce tar containing less than 1% moisture content. It was during this operation that Central N.Y. Power engineers were faced with troublesome boil overs day after day until they tried DC Antifoam A. Now, simply by dropping a 1 ounce gelatin capsule of DC Antifoam A into the 5,000 gallon tar pot they eliminate boil overs completely.

Such success stories are typical of DC Antifoam A. This remarkably efficient silicone defoamer has proved to be equally effective against foaming in the processing of foods, paper, adhesives, varnishes, and chemicals. If you are troubled by foaming during the handling or processing of any material, call our nearest branch office or write for pamphlet J9.

DOW CORNING CORPORATION MIDLAND, MICHIGAN

Atlanta • Chicago • Cleveland • Dallas
Los Angeles • New York
In Canada: Fiberglas Canada, Ltd., Toronto
In England: Albright and Wilson, Ltd., London

Photo courtesy Central N.Y. Power Corp.



When inquiring check CP 3124
on handy form, pgs. 2-3

SEPTEMBER, 1949

PROCESSING EQUIPMENT

maintenance, has no operating cost; causes no sparks. Field is uniform. There are no dead spots and no chance for iron to get by.

Separator is furnished complete with shaft and v-belt sheave.

Illustration shows Type PA permanent drum separator. Available in range of sizes from 12" to 24" diameter, and corresponding widths of 12" to 48".

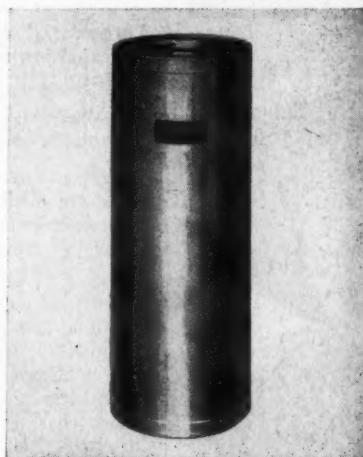
Separators are also available in Type FA and Type SA which have the Perma-Drum fully enclosed. Housing is of all-metal dust-tight welded construction, equipped with completely enclosed electric motor and speed reducer drive, top and bottom flanges for quick installation in chutes and ducting. Type SA has a separate discharge spout for tramp iron.

Bulletin C-1100-A describes all three types and lists drum dimensions, cfm capacities, drive hp requirements, rpm ranges of drum shells.

Source: Dings Magnetic Separator Co., Dept. CP, 4740 W. Electric Ave., Milwaukee, Wis. . . or for more information check CP 3125 on handy form, pages 2 and 3.

Stainless steel Dewar flasks maintain liquefied gases at extremely low temps . . .

polished walls and unobstructed surfaces increase efficiency; metal provides strength, durability



Stainless steel open Dewar flask

Uses: To hold liquefied gases such as liquid air, liquid nitrogen, liquid oxygen, etc. Also useful in maintaining other materials at extremely low temperatures.

Features: All interior seams are eliminated by use of smooth helium-arc welds. Unobstructed surfaces render flasks much more efficient.

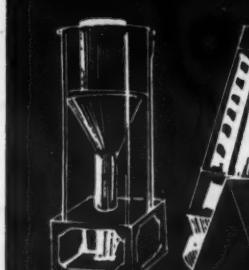
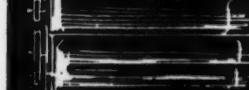
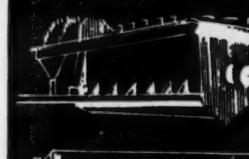
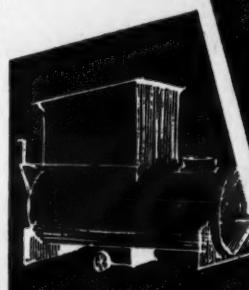
All-stainless construction assures great durability, removes possibility of "explosion" or collapse with subsequent loss of contents or injury to personnel from flying fragments.

Description: Type 304 18-8 stainless steel is used throughout. Internal wall surfaces are highly polished for optimum reflection of heat rays. Unique radiation shield is included to provide 2 more polished surfaces. Thus 4 heat-reflecting surfaces provide barrier against heat penetration.

Should damage occur, metal flasks are repairable at fraction of total cost. Supplied in range of 26 standard sizes up to 36" I. D. Special units and flasks of other metals are furnished to special order.

Source: Produced by Hofman Laboratories, Inc., Dept. CP, 212 Wright St., Newark 5, N. J. . . or for more information check CP 3126 on handy form, pages 2 and 3.

Is yours a problem of MIXING?



IF SO, let Sprout-Waldron be the first to come to your assistance.

Everyday we are matching customers' standard and specialized requirements for handling foods, dyes, plastics, chemicals—or what have you?

At Sprout-Waldron you will find a size, a type, and a construction for almost every mixing need.

There are verticals, horizontals, batch or continuous, rubber lined or glass lined . . . of wood, carbon steel, nickel steel, stainless steel—even Plexiglas.

Let's get together on your mixing problems today! Send full details to SPROUT, WALDRON & CO., 10 Waldron St., Munsey, Pa.

SPROUT WALDRON
Manufacturing Engineers

MUNSEY

PENNSYLVANIA

When inquiring check CP 3127 on handy form, pgs. 2-3

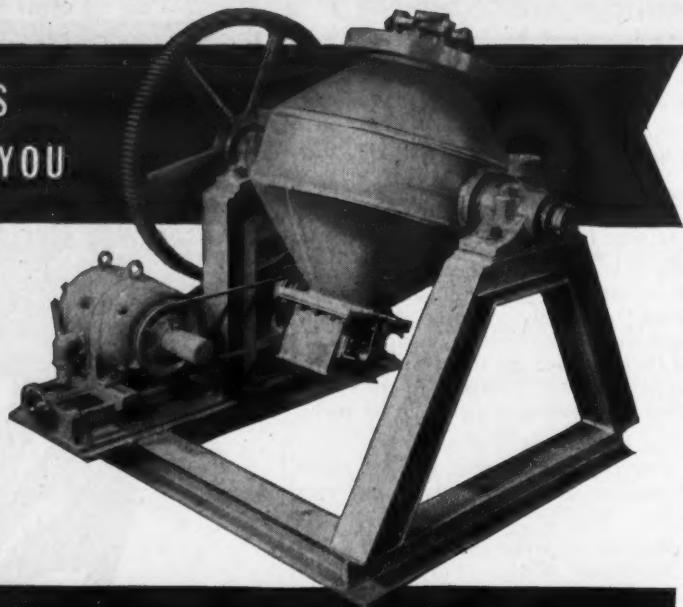
Page 87

LET US MAKE THIS BLENDING TEST FOR YOU

BLAW-KNOX makes a standing offer to run a test quantity of your materials through a Blaw-Knox Tumbling Blender, without expense to you. Such a demonstration will prove this unique machine's ability to produce uniform mixtures quickly and economically regardless of variations in grain size, shape of particles, or gravities of the materials used.

Blaw-Knox Tumbling Blenders are available in a full range of sizes and a series of metals and alloys. Literature and full information will be supplied on request.

BLAW-KNOX DIVISION
OF BLAW-KNOX COMPANY
2076, Farmers Bank Bldg., Pittsburgh 22, Pa.



BLAW-KNOX

When inquiring check CP 3128 on handy form, pgs. 2-3

Here's another size of the New design of HEVI DUTY MUFFLE FURNACES

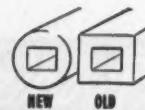
The New Type 056-PT incorporates all the revolutionary new features of Hevi Duty Laboratory Furnace Design.

Two months ago, we introduced a new standard small size Muffle Furnace, type 051-PT, housed in a cylindrical shell and containing vastly improved features. Now we are ready with the second in the series, Type 056-PT, with inside measurements of $7\frac{1}{2}'' \times 14'' \times 5\frac{1}{4}''$. Research engineers will find it ideal for all general laboratory requirements such as drying of precipitates, ash determinations, fusions, ignitions, heating metals and alloys, enameling, heat treating, and experimental test work. Six of many important features are listed below. For complete specifications and details write for the new Bulletin LAB-849.

See your Laboratory Supply Dealer or Send for Bulletin LAB-849.



Instruments and Controls operate at approximately room temperature...there is no trapped heat.

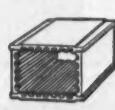


As a result of correct insulation design, you can shift rapidly to desired operating temperatures.

HEVI DUTY ELECTRIC COMPANY

TRADE MARK
LABORATORY FURNACES **MULTIPLE UNIT** ELECTRIC EXCLUSIVELY
REG. U. S. PAT. OFF.

MILWAUKEE 1, WISCONSIN



Reversible and easily replaceable Multiple Units, time-tested for 30 years, have been retained.



36 steps of control through a Hevi Duty Tap-Changing Transformer allow maximum flexibility.



Controls are mounted in a recessed position for safety and at correct angle for proper vision for operator.



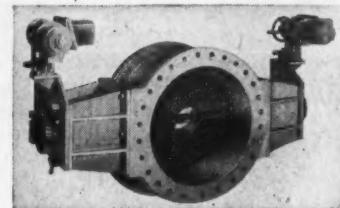
Removing rear panel exposes terminal board. Releasing front panel permits control assembly to slide forward.

When inquiring check CP 3129 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Close control of flows at high temps possible with dual-vane valve . . .

unit controls small volumes at high pressure drop or large volumes at low pressure drop



Dual-vane valve for high-temp operation

Features: Chrome-molybdenum alloy

steel construction permits use at temperatures to 1000°F. Description: Designated as Valve No. 725, unit has 36" diameter, is 8" thick. Class B steel dual valve is rated at 150 psi, but is available in any material and for higher pressures.

Powered by separate electric motors, each alloy steel vane is operated independently, assuring close control of volume and pressure.

Source: Manufactured by R-S Products Corp., Dept. CP, Wayne Junction, Philadelphia 44, Pa. . . . or for more information check CP 3130 on handy form, pages 2 & 3.

Thread 1/4" to 2" pipe faster on machine with 3-speed motor . . .

threads short lengths of pipe on both ends without nipple chuck

Uses: Faster threading and minimum handling of stock are made possible by this machine for production threading in regular pipe range of $1/4''$ to $2''$; extra pipe range $1/8''$; bolt range $1/4''$ to $1\frac{1}{2}''$.

Features: Faster threading, etc. is made possible by the 3-speed motor (900-1800-3600 rpm and spindle speeds of 40-80-160 rpm); worm gear drive with ball bearing mounted spindle; "Spinfast" wrenchless front chuck has easy-to-grip chuck wheel; non-locking rear centering chuck; quick-opening adjustable die-heads with segmental dies.



Description: Carriage and die-head support the operating unit with flat ways on bed. A carriage lever is used instead of a hand wheel. Carriage travel is 12"; length of ways 30"; spindle bore $2\frac{1}{2}''$. Height to center of spindle 38". Threader has selector switch, push-button controls; 3-speed motor

Machine has maker's own design, quick-opening, adjustable die-heads with segmental dies; length gauge for quick

PROCESSING EQUIPMENT

setting to size for threading and calibrated gauge for setting to desired length of pipe for cutting off; individual drive coolant pump with coolant line in front of die head.

Versatility of machine is demonstrated by its ability to thread short lengths of pipe on both ends, such as 2" pipe only 3½" long, without using a nipple chuck.

Maximum length of chuck without regripping stock-14½". Floor space required 2' 3" x 5' 10".

Source: No. 702 Wilco threader is built by the Oster Mfg. Co., Cleveland 3, Ohio. . . or for more information check CP 3131 on handy form, pages 2 and 3.

Pump liquids, slurries without aeration, contamination . . .

ejection pump requires no lubrication, has no glands or bearings, does not churn liquids

Uses: To pump liquids of high or low viscosity, liquids containing suspended or included particles. Especially useful in transfer of liquids which must not be churned or violently agitated, and liquids which must not be contaminated.

Features: Pump requires no lubrication, has no glands or bearings, and does not churn or otherwise violently agitate liquids.

Description: Maintains rhythmic cycle of suction and discharge. As shown in diagram, air-operated ejector creates vacuum throughout pump, draws liquid into case.

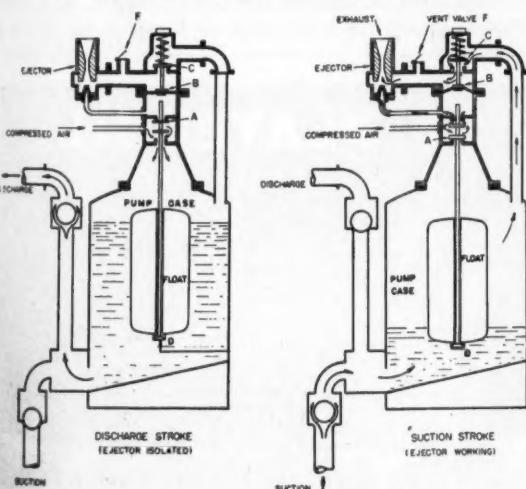


Diagram shows operating principle of pneumatic pump

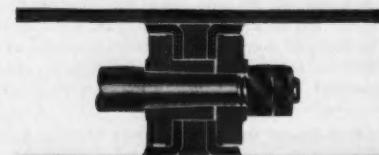
When pump case is nearly full, air-flow reverses, ejector is shut off, and compressed air discharges liquid through non-return valve. When pump case is nearly empty, air flow reverses again, and ejector again creates vacuum in pump case.

Pump operates on compressed air from 30 to 50 psi; handles liquids at temperatures to 120°F. Pumps have maximum suction lift of 25', maximum discharge heads up to 55'. Pumps gritty and corrosive material without damage. Cannot contaminate liquids, because there is no lubrication to leak into line.

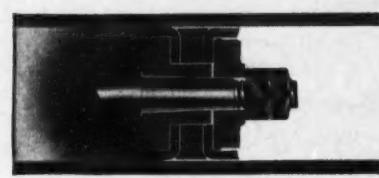
Source: Product of Schutte and Koerting Company, Dept. CP, 12th and Thompson Sts., Philadelphia 22, Pa. . . or for more information check CP 3132 on handy form, pages 2 and 3.

IS YOUR SLIPPAGE SHOWING?

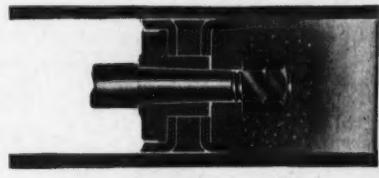
DIAGRAM OF PUMCUP ACTION GREATLY EXAGGERATED



NORMAL: BOTH PUMCUPS RELAXED



UNDER PRESSURE: PUMCUPS SEAL AGAINST CYLINDER DESPITE WEAR, MINIMIZING SLIPPAGE



Darling Valve & Mfg. Co., Williamsport 4, Pa. Please send me the free bulletin checked below:

No. 4401 . . . Darcova Pumcups for reciprocating pumps.
 No. 4502 . . . Darcova Pumcups for air or hydraulic mechanisms.

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____



**DARLING VALVE &
Manufacturing Co.**
WILLIAMSPORT, PA.



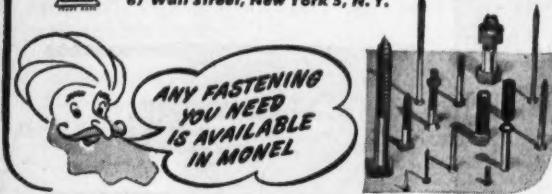
"Monel Fastenings help me write under water!"

By doing this trick, the Swami could easily ruin his professional equipment. But the wise Swami has carefully chosen nails of Monel*. His nails are 100% rustproof. What about the fastenings you use? Are they failing too soon because of rust . . . corrosion . . . heat . . . cold . . . vibration . . . shock . . . over-stressing? If they are, take a tip from the Swami. Switch to Monel fastenings!

Test Monel fastenings, free! Write to Bob Johnson of Inc. Tell him the type and size you need. He'll send a sample . . . plus the address of your nearest supplier.

*Reg. U. S. Pat. Off.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.



INDUSTRIAL NO Drip

Anyone can brush, trowel or spray NoDrip on any clean, dry surface. Goes on like plaster, forms a seamless, protective coating, stops condensation drip!



NoDrip keeps equipment and floors safe and dry; prevents corrosion of metal and prolongs its life. Acid, alkali and brine resistant. Comes in 1, 5, and 55 gal. drums, ready for use.

TRY NoDrip

Apply NoDrip to a small area, compare the results with uncovered portions. Send for free NoDrip Handbook.

J. W. MORTELL CO., 532 Burch St., Kankakee, Ill.

When inquiring check CP 3134 on handy form, pgs. 2-3

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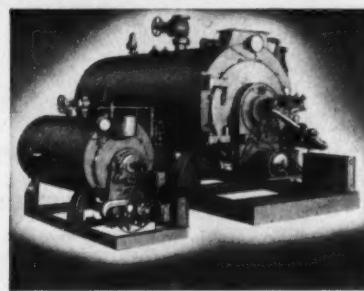
PROCESSING EQUIPMENT

Combustion efficiency of boiler high at all firing rates . . .

atomizing nozzle, functioning with either gas or oil, has primary air supply

Uses: Generation of steam.

Features: Atomizing nozzle, which can be used interchangeably with gas or oil, incorporates primary air supply that assures precise injection of fuel and air for efficient combustion at all firing rates. High combustion efficiency with either fuel is reported.



Improved steam generators

200 lbs.

Source: Developed by Cyclotherm Corporation, Dept. 16R, Dept. CP, 90 Broad St., New York 4, N. Y. . . . or for more information check CP 3135 on handy form, pages 2 and 3.

Imprint 2400 flat cartons per hour with automatic marking machine . . .

also used in imprinting other containers such as cartons, multi-wall bags; uses rubber type

Uses: For imprinting on any or all surfaces of shipping containers, cases, cartons, multiwall bags. Used for printing company name, product name, sizes, quantity, codes and other symbols, addresses, export marking, etc.

Features: Eliminates practically all manual operations, speeds up imprinting. Machine can be operated by one person. Quickly-assembled base-lock rubber type is used. Type and ink rollers need not be cleaned after using. Prints up to 2400 impressions per hour.



Imprinting cartons in export department of cigarette manufacturer

Description: Frame holding imprint roller, etc. is clamped to table, with motor and drive underneath (see illustration).

To operate, the knock-down case or carton is placed on table top and is pushed under printing roller by a travelling

Uniform Separation

FOOD PRODUCTS — CHEMICALS — METALLICS NON-METALLIC MINERALS

The new model GAYCO Centrifugal air separator makes possible the uniform and increased recovery of fine material within a range of 40 to 400 mesh.

- Greater Capacity
- Cleaner Trailings

- 99% Through 325 Mesh

- 25% to 30% greater recovery of fines

- Not affected by variation in speed or rate of feed

TIMKEN BEARING EQUIPPED

The Gayco Separator Handles Such Products As

BAGASEE	GROUND HAIR
CASEIN	GROUND OATS
COCOA POWDER	GUM ARABIC
COTTONSEED	SOY FLOUR
MEAL	SPICES
FERTILIZER	SUGAR

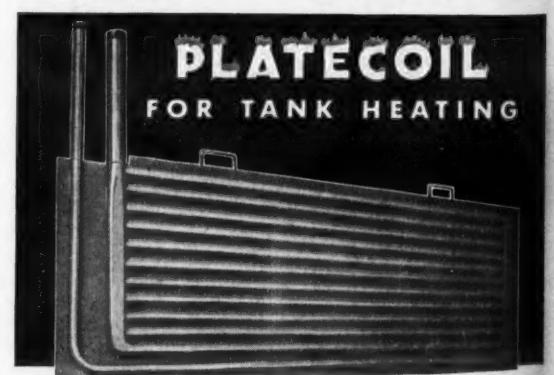


Universal Road Machinery Co.

RUBERT M. GAY DIVISION 117 Liberty St. New York 6, N. Y.
Canadian Representative: F. H. Hopkins & Co., Ltd., Montreal
FACTORY & LABORATORY, KINGSTON, N. Y.

When inquiring check CP 3136 on handy form, pgs. 2-3

PLATECOIL FOR TANK HEATING



PROVIDES 4 OUTSTANDING SAVINGS

- ① More Prime Surface for More Efficient Heating.
- ② Develops Quick Heat for Quick Starts. (As Much as 50% Faster Than Pipe Coil.)
- ③ Takes Half the Space, Weighs Half as Much as Pipe Coil.
- ④ Platecoils are easily cleaned and are Replaced in Minutes by Two Men — No Downtime for Repairs — No Tank Dumping.

Take advantage of the complete laboratory assistance offered by the Kold-Hold Company to help you with your heat transfer problems. Send for complete technical manual and descriptive bulletin No. U49.

PLATECOIL
Division
KOLD-HOLD MFG. CO.
LANSING, MICHIGAN

When inquiring check CP 3137 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

PROCESSING EQUIPMENT

chain equipped with dogs. Rubber type is resilient, therefore no make-ready is necessary.

Inking is by means of a felt roller with internal ink reservoir and rubber transfer roll. A quick-drying, non-caking ink is used.

Side rails of the equipment are adjustable to take various sizes of containers. Spring-loaded pressure roller to compensate for variations in container thickness is also adjustable. An indexing arm on the drums serves to center impressions.

Sealed ball bearings are used throughout. A $\frac{1}{4}$ hp motor and enclosed reducer drives the equipment. An explosion-proof motor can be substituted when operations require it.

Source: No. 7 Auto-Printer is built by Industrial Marketing Equipment Co. (Div. Natl. Rubber Stamp Wks.), Dept. CP, 7 East 48th St., New York 17, N. Y. . . or for more information check CP 3138 on handy form, pages 2 and 3.

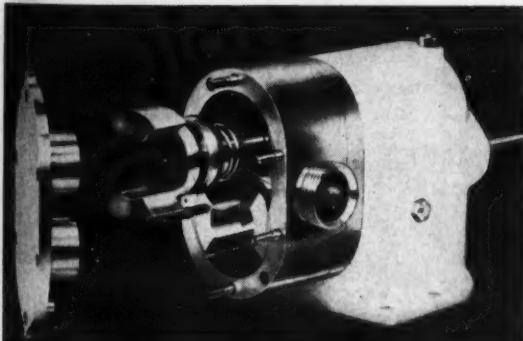
**Place seal springs outside
pumping chamber, stop
"product plug" . . .**

no messiness from leaks or drippage; wetted parts of sanitary parts are stainless steel

Uses: For handling chemicals, syrups and the like.

Features: One-piece rotor and shaft assembly eliminates internal shaft and seal threads in the liquid end. Contamination of milk, food and other products from this source is completely eliminated.

Wetted parts are of stainless steel, insuring utmost sanitation. These parts are quickly removable, reducing cleaning time to a minimum.



Sanitary pump has one-piece rotor and shaft assembly

Description: Maker states its organization made first sanitary pumps to meet 3A Sanitary Code which outlaws threads in product zone. Controlled internal pump clearances assure positive product flow. As there is no internal metal contact or friction between rotors and housing in the pumping, flow settings remain constant.

Slow pump speed eliminates undue agitation or aeration of product being pumped. Placing of seal springs outside of pumping chamber is said to eliminate product plug and to do away with messiness caused by leaks and drippage. Pumps are available in capacities from 1 to 125 gpm, with pump speeds ranging from 50 to 600 rpm, and port connections from 1" to 2 1/2".

Source: Sanitary Pump Div. Waterous Co., Dept. CP, 80 E. Fillmore Ave., St. Paul, Minn. . . or for more information check CP 3139 on handy form, pages 2 and 3.

SEPTEMBER, 1949

How to simplify process piping jobs ... get everything from CRANE

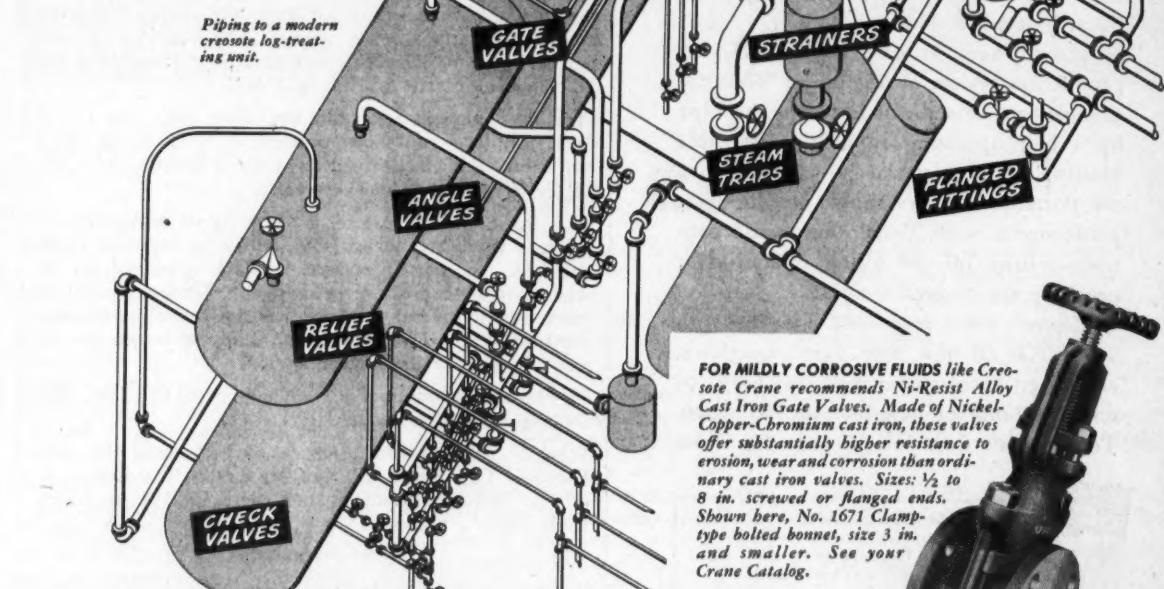
Take this Wood Preserving Unit, for example. Crane supplies everything for the system—valves, fittings, pipe and accessories. One order to Crane covers all your piping equipment needs . . . and results in better service. For Crane supplies you locally through a cooperating network of well-stocked Branches and Wholesalers having direct access to large factory stocks.

To standardize on this **Single Source of Supply** is to simplify every piping procedure, from design to erection to maintenance. **Complete Responsibility** on Crane for all materials makes for a better installation, avoids unnecessary delays. Specifying Crane Quality assures **Highest Quality** in every item . . . and dependable performance from every part of your piping system.

CRANE CO., 836 S. Michigan Ave.,
Chicago 5, Ill.

*Branches and Wholesalers Serving All
Industrial Areas.*

ONE SOURCE OF SUPPLY
RESPONSIBILITY
STANDARD OF QUALITY



FOR MILDLY CORROSIVE FLUIDS like Creosote Crane recommends Ni-Resist Alloy Cast Iron Gate Valves. Made of Nickel-Copper-Chromium cast iron, these valves offer substantially higher resistance to erosion, wear and corrosion than ordinary cast iron valves. Sizes: $\frac{1}{2}$ to 8 in. screwed or flanged ends. Shown here, No. 1671 Clamp-type bolted bonnet, size 3 in. and smaller. See your Crane Catalog.

EVERYTHING FROM . . .

VALVES • FITTINGS
PIPE • PLUMBING
AND HEATING

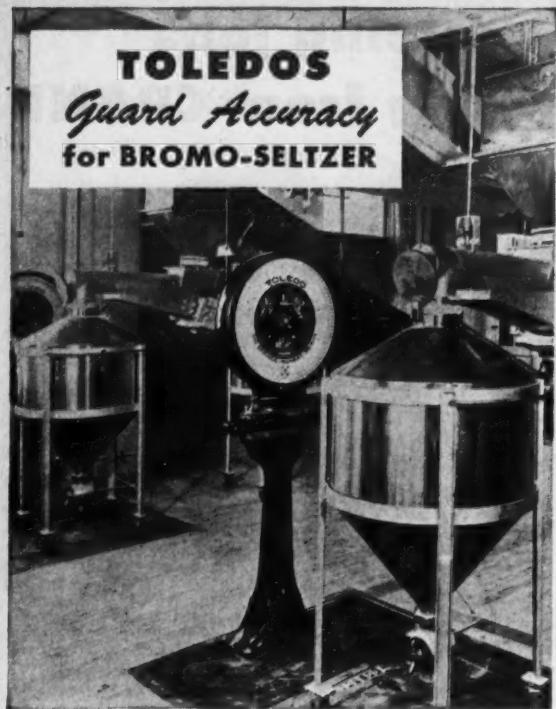
CRANE

FOR EVERY PIPING SYSTEM

When inquiring check CP 3140 on handy form, pgs. 2-3

2-3

Page 91



Accurate batching... automatically controlled by Toledo Scales... helps to maintain unvarying quality in production of Bromo-Seltzer at the Emerson Drug Company, Baltimore, Md.

Shown here is part of the efficient production system of this plant. The dry, granular processed salt is fed to the bins by a belt operating in a stainless steel housing. The material is weighed into the portable hoppers shown on the scale platforms... with Toledo automatic controls cutting off the filling operation at precisely the desired weight.

Control your costs and quality with TOLEDO all the way... in weighing, counting, force-measuring, batching or testing. Send for new bulletin No. 2020. Toledo Scale Company, Toledo 12, Ohio.



Toledo Service as near as your telephone... with factory-trained service men in more than 200 cities of United States and Canada.

TOLEDO
HEADQUARTERS FOR SCALES

When inquiring check CP 3141 on handy form, pgs. 2-3

Page 92

PROCESSING EQUIPMENT

Worm-feed stokers have choice of 3 speeds...

venturi creates pressure in coal-feed tube, prevents blow-back of gas or smoke

Uses: To deliver coal to furnaces at rates from 75 to 312 lbs. per hr.

Features: Safety cutout stops motor if shear pin is sheared because of stone or tramp iron in feed line. Special venturi connected to coal-feed tube near retort creates sufficient pressure in coal-feed tube to prevent blow-back of gas and smoke.



Worm-feed stoker

Description: Stokers are available in 7 sizes, with coal-burning rates of 75, 110, 150, 177, 205, 265 and 312 lbs. per hr. All stokers have triple-grooved, stepped sheaves and drive shafts. Lever quickly lowers motor, releases tension on belt, permits quick changing of speed from 100% burning rate to 70% and 50%.

Phosphor bronze worm gear, steel spur gears run in oil bath. Oil-level cup shows presence of water in oil when any appreciable amount collects, permits draining of water before damage to gears takes place.

Standard air volume control is manually set to regulate air intake. Automatic air volume control is supplied when specified. Automatic control regulates input of air in relation to static pressure in air duct. When adjusted for given quality of coal, automatic control maintains constant depth of fuel bed. Damper of control can be set open to maintain natural draft when desired.

Tuyeres are self-cooling, and are augmented by heavy, self-cooling dead plates in the larger sizes.

Source: Worm-feed stokers are produced by The Brownell Co., Dept. CP, 442 N. Findlay St., Dayton 1, O. . . . or for more information check CP 3142 on handy form, pages 2 and 3.

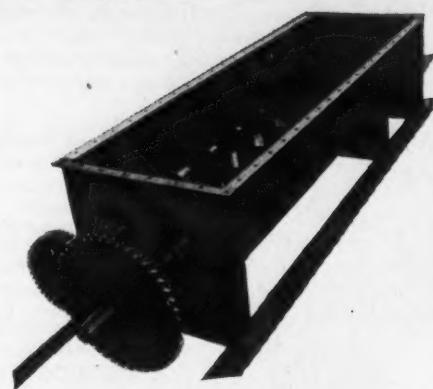
Stationary pumps for general water pumping; some models handle corrosives...

operate against heads up to 250'; priming is fast, automatic; self-priming on suction lifts to 25'

Uses: Six stationary models cover a range of capacities (10-300 gpm against heads to 250') for services including general industrial pumping, mine services, dewatering and sump pumping. Design of some models permits use in handling corrosive liquids. One portable unit is also available for drainage and water handling.

ALLOY FABRICATION

STAINLESS STEELS—INCONEL—MONEL
ALUMINUM—NICKEL AND THEIR CLADS



NICKEL

PADDLE MIXER OF $\frac{3}{8}$ " NICKEL PLATE
We specialize in difficult fabrications of stainless steel, inconel, and nickel. Special equipment jobs have built our Company. We would appreciate the opportunity of serving you.

ALLOY MANUFACTURING COMPANY

MORNING & CURRY ROADS PITTSBURGH 17, PA.

Telephone: KELLY 0950

When inquiring check CP 3143 on handy form, pgs. 2-3



Industrial Drying
IS A JOB FOR

ROSS

In practically all industries ROSS Batch Tray or Continuous Type Dryers are a major part of the manufacturing process. Designed for steam, hot water, gas, oil, electricity or infra-red—your ROSS Dryer will use the most economical fuel, insure uniform controlled temperatures, minimum heat loss. For the "right" dryer specify a ROSS Dryer.

Modern drying methods in major industries are described in our Catalog 131. Copy on request.

J. O. ROSS ENGINEERING CORPORATION
MANUFACTURERS OF AIR PROCESSING SYSTEMS
140 MADISON AVENUE NEW YORK 16, N. Y.

CHICAGO • DETROIT • BOSTON • LOS ANGELES • MONTREAL • LONDON

When inquiring check CP 3144 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

Solve your Ventilating Problems with

INTERNATIONAL

DUCT BOOSTERS
STACK FANS
AND BLOWERS

If you have a problem of forced draft or ventilation, send for descriptive literature showing typical installations in ships and industrial plants, apartment houses and public buildings.

ASK FOR BULLETIN No. 102

INTERNATIONAL ENGINEERING INC.
DAYTON 1, OHIO.

NEW YORK, 15 PARK ROW—CHICAGO, 407 S. DEARBORN

When inquiring check CP 3148 on handy form, pgs. 2-3

Here's Equipment Built to Stand Up Under Your Production Requirements for
METERED PRESSURE PUMPING of Such Chemicals as:

SULPHURIC ACID • SODIUM HYDROXIDE
LIQUID CHLORINE • HYDROCHLORIC ACID
SLURRIES • CHLORINATED HYDROCARBONS
HYDROGEN PEROXIDE • NITRIC ACID
HYDROFLUORIC ACIDS • OLEUM • PROPANE
CYANIDE COMPOUNDS • STYRENE • FREON

- NO STUFFING BOX OR RUNNING-SEAL
- POSITIVE DISPLACEMENT PISTON MEASUREMENT
- FLOW RATE ADJUSTABLE WHILE IN OPERATION
- MANUAL OR AUTOMATIC CONTROL

Lapp

PULSAFEEDER

PISTON DIAPHRAGM CHEMICAL PROPORTIONING PUMP

WRITE for Bulletin 262 with complete description and specifications.
LAPP INSULATOR CO., INC., PROCESS EQUIPMENT DIVISION, 120 MAPLE STREET, LE BOUT, N.Y.

When inquiring check CP 3149 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Bar screens rake collected debris from bottom of sewage channel . . .

rake teeth are in horizontal position when protruding through screen bars at bottom of screen

Uses: To remove screenings from channel of sewage flow. Can be adjusted for shallow, medium or deep channels; can be mounted in groups for wide channels.

Features: Rake teeth protrude between screen bars in horizontal position at very bottom of screen. Thus all collected material is carried upward, not pushed away to accumulate out of reach of teeth.

Description: Milled rake bar has individual removable teeth. Teeth carry screenings up bar screen and deposit them in trough, where they may be ground or removed.

Operating mechanism is on downstream side of screen; solids and debris can collect only on the screen bars.

Each unit is furnished with automatic controls. Water-level control electrodes are mounted upstream to assure positive starting of cleaning mechanism whenever debris accumulation causes appreciable rise in water level. Timer control is also supplied to operate mechanism for any predetermined interval of time. Limit switch is mounted on unit to stop mechanism with rake teeth out of sewage flow.

Sheer pins protect cleaning mechanism from damage due to jamming or overload. Rake teeth are pitched slightly toward bars to hold material firmly. When teeth reach top of screen, they drop to 45° angle to deposit material in flushed sorting trough.

Total height of unit from mounting floor is only 5'. Entire above-floor structure is enclosed with stainless steel panels. Units may be used for minimum channel width of 2' 6", maximum width of 5'. Minimum setting is 2' 6". For minimum channel widths and settings or for parallel multiple installations, American Mechanically Cleaned Standard models are recommended. For larger channels a Heavy-Duty model is available. Described in Tech. Supplement MS 1-6.

Source: Produced by The American Well Works, Dept. CP, Aurora, Ill. . . or for more information check CP 3150 on handy form, pages 2 and 3.

Drill-press vise jaws lock in position with single turn of handle . . .

single turn frees jaws for push-pull opening, closing; unit clamps to press column

Uses: To hold parts on drill presses. Takes the place of small jigs in many instances.

Features: Single turn of handle frees vise jaws for push-pull opening and closing. Single turn locks jaws in position.



25% longer wearing than before—Redmont GLOVES

Combining resiliency of neoprene with durability of plastic. As extra heavy coating over fabric lining, NEOX gives snag-proof, liquid-proof, safer protection against acids, caustics, oils, greases, solvents and many other harmful materials and wears far longer.

TEST OFFER See your supplier or write direct for test samples, report form and prices, stating materials handled, operations, temperature conditions.

EDMONT Mfg. Co., 501 Orange St., Coshocton, Ohio.

Edmont
FABRIC-LINED
NEOX-COATED
GLOVES

When inquiring check CP 3151 on handy form, pgs. 2-3



Smooth Vibrationless MICHIGAN MACHINED-PITCH PROPELLERS for MIXING or AGITATION

For replacement or original equipment. Perfectly balanced to avoid whip and strain on equipment. Wide range of sizes and metals in 2 and 3 blade models. Free consultative engineering service. Write for details.

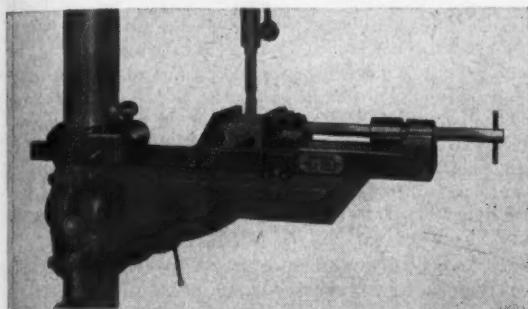


MICHIGAN WHEEL CO.
GRAND RAPIDS 3, MICHIGAN

When inquiring check CP 3152 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Description: Vise clamps to column of single or multiple spindle drill presses. Entire vise is easily swung to right or left, or completely off work table when large pieces are to be drilled. Vise may be pushed toward column or pulled toward front of table. Clamps in any position. Vise jaws measure $1\frac{1}{2}$ " x 4"; maximum jaw opening is 6".



Quick-opening drill-press vise

Supplied in models for drills with stationary tables and for drills with movable tables.

Columns of $1\frac{7}{16}$ " diameter through $3\frac{29}{32}$ " diameter can be accommodated. May be used as quick-acting machine vise by removing column connection and bolting vise to machine table.

Source: Universal Vise & Tool Co., Dept. CP, Parma, Mich. . . or for more information check CP 3153 on handy form, pages 2 and 3.

Surface plate, angle plate, V-blocks aid laying-out of shop work . . .

Items permit precise checking of finished products; may be obtained individually

Uses: For laying out work, surfacing, checking flat surfaces and right angles, etc.

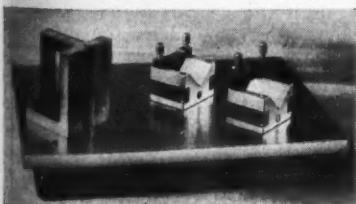
Description: Surface plate is of close-grained ground iron, heat-treated to prevent distortion. Edges are machined and under-side of edge is finished to facilitate clamping of gauges and fixtures in position. Size is 12" x 17" x 3". Weighs 64 lbs.

V-blocks provide rigid support for holding cylindrical parts. Made of hardened steel with all surfaces precision ground.

Each pair is finished together so that V-grooves are in perfect alignment. Clamp is supplied with each block, and knurled screws are cross-drilled round work $\frac{1}{4}$ " numbered pairs.

Surface plate, angle plate and V-blocks to provide for tightening. Blocks hold 2" in diameter. Available only in numbered pairs. Angle plate is precision ground on 6 sides. Measures $3\frac{1}{4}$ " x $3\frac{1}{4}$ " x $4\frac{1}{4}$ ". Weighs 8 lbs. Bul. 1005-A describes surface plate and accessories in detail.

Source: Product of South Bend Lathe Works, Dept. CP, 425 E. Madison Ave., South Bend 22, Ind. . . or for more information check CP 3154 on handy form, pages 2 & 3.



Surface plate, angle plate and V-blocks

to provide for tightening. Blocks hold 2" in diameter. Available only in numbered pairs. Angle plate is precision ground on 6 sides. Measures $3\frac{1}{4}$ " x $3\frac{1}{4}$ " x $4\frac{1}{4}$ ". Weighs 8 lbs. Bul. 1005-A describes surface plate and accessories in detail.

Source: Product of South Bend Lathe Works, Dept. CP, 425 E. Madison Ave., South Bend 22, Ind. . . or for more information check CP 3154 on handy form, pages 2 & 3.

CMH

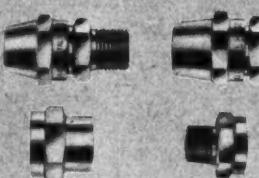
One dependable source for every
flexible metal hose requirement



Corrugated Metal Hose in steel, bronze and stainless steel.



Convoluted Metal Hose in variety of types—steel, bronze and alloys.



Couplings to meet every need.

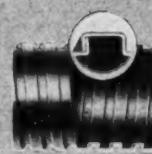
CMH	HOSE USE
✓	Steam Hose
✓	Lubrication Hose
✓	Oil Lines
✓	Coolant Hose
✓	Pneumatic Hose
✓	Hydraulic Hose
✓	Chemical Hose
✓	Insulated Hose
✓	Charging Hose
✓	Expansion Joints
✓	Flexible Connections
✓	Exhaust Hose
✓	Platen Press Connections
✓	Tar and Asphalt Hose
✓	Metal Conduits
✓	Loading & Unloading Hose
✓	Gas & Air Hose
✓	Vacuum Hose
✓	General Utility Hose
✓	Bellows
✓	Flexible Lamp Arms



Expansion Joints for high and low pressures—stainless steel and copper.



Bellows in all sizes for all requirements—stainless steel and brass.



Metal Conduits in a variety of types and materials.



Flexon identifies CMH products which have served industry for more than 47 years.

CHICAGO METAL HOSE CORPORATION

Maywood, Illinois

Plants at Maywood, Elgin and Rock Falls, Illinois

In Canada: Canadian Metal Hose Company, Ltd., Brampton, Ontario

When inquiring check CP 3155 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

OVER
500
FURNACES
SINCE 1940

Lined with

B&W

**INSULATING
 FIREBRICK**

*and No
 Refractory
 Repairs!*

Since 1940, Petro-Chem Development Company has designed and built more than 500 process furnaces for use throughout the world in the petroleum and allied industries. All are lined with B&W Insulating Firebrick — and no shut down has ever been due to refractory repairs!

B&W I. F. B. are the key to other cost savings, too. Cycle time, heating-up time, and fuel consumption are

reduced. Furnaces respond more readily to temperature changes . . . afford better quality control. Then, too, light weight B&W I. F. B. require less costly supporting steel-work.

Let your local B&W Refractories Engineer show you how progressive process furnace operators are achieving greater overall production efficiency through using B&W Refractories.



B&W REFRactories PRODUCTS

B&W SO FIREBRICK • B&W JUNIOR FIREBRICK
 B&W SO GLASS TANK BLOCKS • B&W INSULATING FIREBRICK
 B&W REFRACtORY CASTABLES, PLASTICS AND MORTARS

OTHER RAW PRODUCTS

Stationary & Marine Boilers and Component Equipment
 Chemical Recovery Units . . . Seamless & Welded Tubes . . . Pulverizers
 Fuel Burning Equipment . . . Pressure Vessels . . . Alloy Castings

When inquiring check CP 3156 on handy form, pgs. 2-3

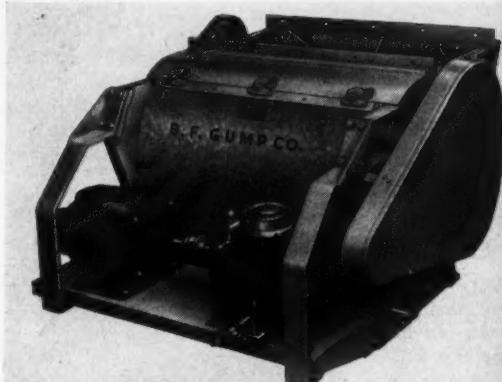
**Feed dry granular material
 in steady, uninterrupted
 controlled flow . . .**

micrometer-type adjustment permits altering of flow while unit is in operation

Uses: For accurate feeding or proportioning of dry powders and granular materials at a controlled rate of flow.

Features: While retaining features of maker's standard feeders, the usual double-acting ratchet drive mechanism has been replaced by a continuous rotary motion, infinitely variable speed drive that has a controlled speed range from zero to maximum rpm. Capacity is easily controlled by a simple micrometer type adjustment, which is complete with dial indicator, and adjustments may be made easily while unit is in operation.

With this type of continuous rotary drive the feeding cylinder, composed of staggered wing pockets, rotates at the



Feeder's rotary-motion infinitely variable speed drive has controlled speed range from 0 to maximum rpm

desired speed smoothly and continuously, thus producing a steady, uninterrupted flow of material from the feeder. The result is improved accuracy in the feeding of ingredients and in making percentage tests.

Description: Series 300 "Micro-Master" Feeder may be installed in groups or batteries as percentage feeding units in continuous mixing systems which can be engineered to have centralized control over starting and stopping operations so that the usual "feed-backs" may be eliminated. They also serve with great efficiency as individual feeders for regulating the flow of dry, powdered, pulverized or granular material to elevators, conveyors, grinders, sifters and other production units.

Source: Series 380 Draver "Micro-Master" feeders are available from B. F. Gump Co., Dept. CP, 431 South Clinton St., Chicago 7, Ill. . . . or for more information check CP 3157 on handy form, pages 2 and 3.

**Tube bender handles copper,
 aluminum, annealed steel
 tubes to 3" diam . . .**

unit makes bends up to 180°, makes offset, U bends in middle of long tubes

Uses: For utility or production bending of copper, aluminum, or annealed steel tubing to 3" diam.

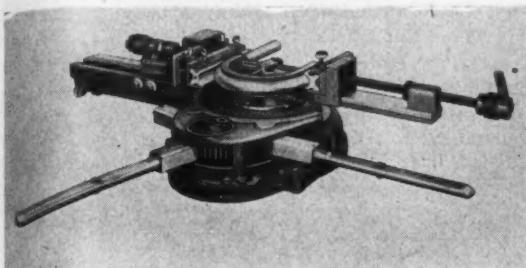
Features: Makes bends to 180°; makes offset and U bends in the middle of long tubes.

Description: Manually operated tube bender is oper-

PROCESSING EQUIPMENT

ated by hand levers actuating central spindle and attached radius block through gearing, as illustrated. Gear ratios of 8-1 or 30-1 may be selected.

Machine is reversible, and tube clamping and radius-form-



Bends tubes to 3" in diameter

ing assemblies may be mounted on either side. Successive right-hand and left-hand bends may be made. Bend radii range from 1 1/4" to 12".

Radius blocks, clamp blocks, slide blocks and mandrels are available for all standard sizes of tubing. Side angle indicators for gaging of angles in different planes, and pneumatic mandrel extractors for smaller radius work are among accessories available.

Source: Model 848 tube bender is produced by The Parker Appliance Co., Dept. CP, 17325 Euclid Ave., Cleveland 12, O. . . . or for more information check CP 3158 on handy form, pages 2 and 3.

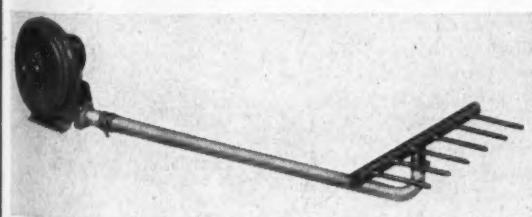
Nowly-perfected air jets eliminate smoke with over-fire air . . .

units provide intimate mixing of volatiles and air, increase furnace efficiency, cut fly ash emission

User: To eliminate smoke, increase furnace efficiency.

Features: Provide efficient mixing of over-fire air and unburned volatiles driven off by furnace heat. New units can provide correct amounts of excess air, with resultant close control of combustion.

Description: Over-fire systems consist of turbo-blower, butterfly air valve, manifold, and either cast iron or high-



Over-fire air jet assembly

temperature alloy jet nozzles. Magnetic starter and push-button control is provided with each system.

Designated as PliOjet air jets, the units can be installed in bridge wall, side walls, front wall, corners, or at any other position. Turbo-blower characteristics, jet nozzle sizes, spacing and penetration lengths are exactly determined. Manufacturer offers complete engineering and installation service with each system.

Source: Produced by Plibrico Jointless Firebrick Co., Dept. CP, 1800 Kingsbury St., Chicago 14, Ill. . . . or for more information check CP 3159 on handy form, pages 2 and 3.



Interior of a 5000-gallon Inconel-Clad Steel Chloromycetin fermenter, made by National Annealing Box Company, Washington, Pa.

contamination . . . both for aseptic reasons and to secure the highest possible yield.

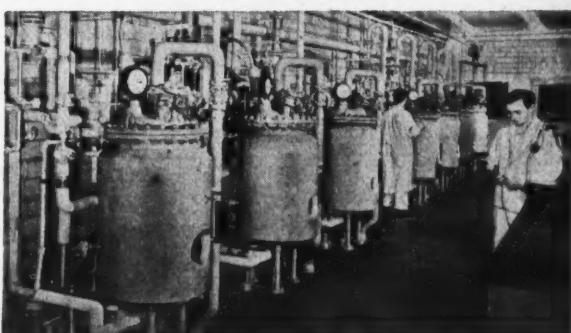
Inco's Corrosion Experts Help

Because of their long and satisfactory experience with Inconel in the production of other sensitive pharmaceuticals, Parke, Davis decided to investigate it for use in Chloromycetin processing. With the co-operation of Inco's Corrosion Engineering Section, tests were made . . . and Inconel's suitability was corroborated.

In use, the Inconel and Inconel-Clad Steel processing vessels have proved entirely satisfactory. Because of its high resistance to corrosion, Inconel is unaffected by nutrient solutions, acid washes, and solvents.

If you have problems involving corrosion or product contamination, consult Inco's Corrosion Engineering Service.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.



Seven 50-gallon pre-seed Chloromycetin fermenters. The vessels are solid Inconel, except for carbon steel flanges.

EMBLEM OF SERVICE
NICKEL INCO ALLOYS
THESE TRADE MARKS

* MONEL • "K" * MONEL • "R" * MONEL • "KR" * MONEL • NICKEL
"D" * NICKEL • "L" * NICKEL • DURANICKEL • PERMANICKEL
INCONEL • INCONEL "X" *
Reg. U. S. Pat. Off.

BagPakers

designed and serviced by the manufacturer of BAGPAK Multiwall Bags

Who but a manufacturer of multiwall paper bags is best equipped to design and service bag packaging machinery?

Automatic advantages of faster, more efficient packaging come with automatic BAGPAKERS . . . that's why we say —

if you want

a packaging machine that sews a multiwall tighter and faster — rely on a BAGPAKER . . .

if you want

an automatic machine that weighs, fills, settles and seals better — rely on BAGPAKER . . .

if you want

a real performer — a dependable machine that boosts and maintains production rates — rely on BAGPAKER .

When inquiring check CP 3161 on handy form, pgs. 2-3



BAGPAKERS and Bagpak Multiwall Bags are ideal for packing food, chemicals and fertilizers. Write for our booklet 200B—it will give you added information on these money- and labor-saving machines and multiwall bags.



INTERNATIONAL PAPER COMPANY, Bagpak Division
220 East 42nd St., New York 17, N. Y.

BRANCH OFFICES: Atlanta, Baltimore, Boston, Chicago, Cleveland, Baxter Springs, Kansas, Los Angeles, New Orleans, Philadelphia, Pittsburgh, St. Louis, San Francisco.

In Canada: Continental Paper Products, Ltd., Montreal, Ottawa.

PROCESSING EQUIPMENT

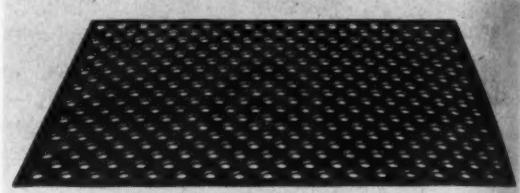
Grades nuts, grains, etc. without clogging . . .

"dished" holes of perforated metal screen prevent stems from catching, "upending"

Uses: Perforated metal screen for cleaning or grading nuts, grains, etc.

Features: Holes have less tendency to become clogged, interfering with passage of graded items. Stems, etc., glide over holes without being upended.

Description: Holes are "dished" to give opening rounded lips. Viewed from lower side, openings are



Perforated metal grading screen

flanged. Screens are made in standard and special sizes.

Source: The Bauer Bros. Co., Dept. CP, 1719 Sheridan Ave., Springfield, O. . . . or for more information check CP 3162 on handy form, pages 2 and 3.

Power take-off tank truck pump primes automatically, handles solvents, etc . . .

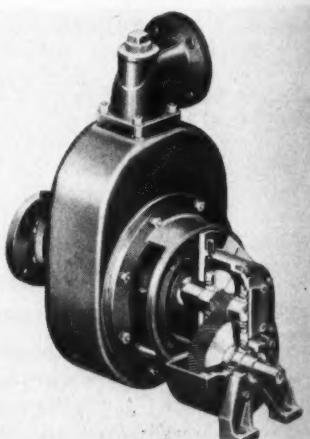
pumps viscosities up to 500 SSU; made in 2" and 3" sizes with capacity range from 20 to 200 gpm

Uses: Designed especially for tank truck operations with volatile fluids such as solvents, oils and many different kinds of chemicals. It will readily handle viscosities up to 500 SSU.

Features: Outstanding feature of the pump from the power standpoint is the built-in gear increaser. This consists of a special precision gearing which is compact, extremely quiet and is described as exceptionally dependable. It is direct-coupled to the power take-off. It is said to be the first power take-off pump with the advantages of self-priming centrifugal operation.

Description:

Manufactured in 2" and 3" sizes, high and low pressure, with capacities from 20 to 200 gallons. Has flanged or threaded connections. Pump is directly coupled to the power take-off.



Tank truck pump has built-in gear increaser

The gear unit is fitted with a mounting bracket that permits installation in any one of four 90° positions. The discharge tee of the pump, similarly adjustable, also helps make installation easy.

Free-flow design and the maker's exclusive "diffuser" prim-

ing method enable this power take-off pump to prime automatically and pump one compartment after another. It contains no auxiliary priming devices and, since the pump does not depend on close tolerances or sliding surfaces, maintenance is negligible.

Source: Type G power take-off pump is built by Marlow Pumps, Dept. CP, Ridgewood, N. J. . . . or for more information check CP 3163 on handy form, pages 2 and 3.

Operate splash-proof switch easily, precisely by means of plate actuator . . .

unit especially suitable for service where there is exposure to oil, water or coolant

Uses: While designed for locations subject to the splash of oil, water or coolant, it is especially advantageous on equipment where operator safety demands two-hand control switches. Can be used on power operated equipment such as punch presses, shears, spot welding machines, riveting machines.

Features: Plate type actuator's 11 1/4 square inches presents an unusually large target for fast, easy manual operation. A rubber bumper mounted on one end of the housing under the free end of the actuator plate offers protection from abusive actuating impact.



Splash-proof switch has plate actuator with 11 1/4" area

ly fitted actuator shaft through the housing wall. Total weight is 1 1/2 lbs. Electrical rating is 15 amps., 125, 250, or 460 volts AC. Circuit arrangement is single pole, double throw.

Source: Splash-proof switch No. OP-AR50 is made by Micro Switch, Dept. CP, Freeport, Ill. . . . or for more information check CP 3164 on handy form, pages 2 and 3.

Safety starter switches off defective fluorescent lamps before fires start . . .

units are reported to have performance life 140% of that of conventional starters

Uses: To supply high voltage impulses to fluorescent lamps.

Features: If lamp becomes defective, starter will switch off lamp in 30 seconds, before transformer becomes overloaded.

Description: Safety Starters are thermostatic relay switches which have been approved by Underwriters' Laboratories, Electrical Testing Laboratory, Inc., and the U. S. Bureau of Standards.

Non-oxidizing materials are used exclusively. Rust-proof brass rivets are employed in place of spot-welding.

Source: Safety Starters are produced by Sulcar Laboratories, Inc., Dept. CP, 306 Halsey St., Newark, N. J. . . . or for more information check CP 3165 on handy form, pages 2 and 3.

"That 100-foot pipe run is shot again, chief . . . the damn thing corrodes through every six months!"



**"Let's try
'KARBATE' pipe this time"**

● Are there spots like this in your plant? Is corrosion causing repeated replacements of pipe line? If so, here's what "Karbate" Impervious Graphite Pipe can offer:

1. Resists the action of acids, alkalis and other chemicals
2. Light weight with adequate strength
3. Resistant to mechanical shock
4. Immune to thermal shock
5. Easy to machine and install
6. Full range of sizes and fittings immediately available

Write for bulletins M-8800 B and M-8801A. Learn about ease of ordering and installing "Karbate" Impervious Graphite Pipe and Fittings. Write Dept. CPP.

The term "Karbate" is a registered trade-mark of
NATIONAL CARBON COMPANY, INC.
Unit of Union Carbide and Carbon Corporation

UCC
30 East 42nd Street, New York 17, N.Y.
Division Sales Offices:
Atlanta, Chicago, Dallas, Kansas City,
New York, Pittsburgh, San Francisco
Foreign Department: New York, U.S.A.



These products sold in Canada by Canadian National Carbon Co., Ltd., Toronto 4, Canada

When inquiring check CP 3166 on handy form, pgs. 2-3

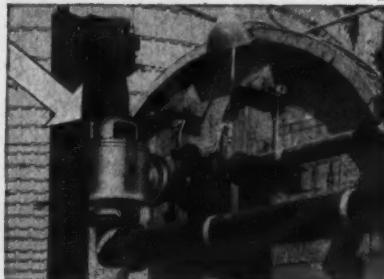
NETTCO AGITATORS



For "MINUTE-MISER" MIXING!

NETTCO AGITATORS conserve valuable processing time. They are engineered to fit the job—to produce the desired agitation in the shortest time. Nettco equipment is economical, too. Using a wide range of standardized components, Nettco offers custom-built agitators that are low in cost, and that give years of efficient economical operation.

Write for engineering recommendations.



Nettco Flomix® at Shell Development Co., Deer Park, Texas, mixing fluids in pipe line.

*Patented

NEW ENGLAND TANK & TOWER CO.

Everett 49, Massachusetts

When inquiring check CP 3167 on handy form, pgs. 2-3

STAINLESS STEEL FRACTIONATING COLUMNS



LEADER BUILDS
TANKS — KETTLES — FRACTIONATING COLUMNS
HEAT EXCHANGERS and SPECIAL EQUIPMENT

OF
STEEL — STAINLESS STEEL — NICKEL — MONEL
INCONEL — COPPER — EVERDUR — HERCULOID
HASTELLOY — ALUMINUM and CLAD STEELS

LEADER IRON WORKS, INC.
2160 N. JASPER DECATUR, ILLINOIS

When inquiring check CP 3168 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Induction-heated still
purifies 5 to 7 lbs
mercury/hr . . .

control maintains proper level in distillation chamber

Uses: To produce high-purity distilled mercury.

Features: Distilled mercury flows into receiving vessel from 4 to 6 min. after distillation begins.

Description: Vacuum distillation chamber is induction heated, thus keeping components of still below 220°C at all times. Produces 5 to 7 lbs. purified mercury per hr.

Mercury vapor passes through restricted and elevated opening which requires 180° change of direction, minimizing contamination from splashes.

Electronic control maintains proper level in evaporation chamber. Raw mercury reservoir holds 40-50 lbs mercury. Still requires floor space 18" x 24", stands 6' high.

Power consumption is 500 watts. Can be used at altitudes from sea level to 6000 ft.

Source: Mercury still is produced by Eberbach & Son Co., Dept. CP, Ann Arbor, Mich. . . or for more information check CP 3169 on handy form, pages 2 and 3.

'Shirt-pocket' gauge
measures standard
pipe sizes . . .

fits $\frac{1}{8}$ to 12" pipe, all sizes of electrical conduit

Uses: For instantly measuring pipe sizes from $\frac{1}{8}$ to 12", and all sizes of electrical conduit, both heavy and thin-wall. Also shows drill size for tapping.

Useful with all sizes of electrical metallic tubing. For taking measurements in corners, against walls or



"Shirt-pocket" pipe gauge

ceilings, and in other locations.

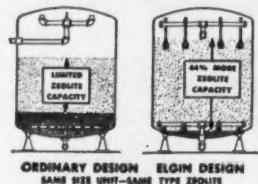
Features: Fits in a man's shirt-pocket. Registers standard pipe size rather than OD.

It is necessary to contact only a small

Everything in Water Conditioning

. . . that's ELGIN

In process industries the water conditioning problem may seem complicated. But whatever the problem, Elgin has the answer. Products and methods include water softeners, iron removal, corrosion prevention, taste and odor correction, filtration, oil removal and chemical treatments. A typical example of Elgin progressiveness is the



ELGIN
Double-Check
WATER
SOFTENER

The diagrams tell the story: "Double-Check" manifolds prevent loss of zeolite . . . permit deeper zeolite bed which greatly increases soft water output . . . gives more efficient operation. Net result, proved by thousands of installations is

44% MORE SOFT WATER per regeneration than other softeners of same size using same kind of zeolite.

Extra gallons of soft water from your present softener—The "Double-Check" is adaptable to existing softeners of any make. "Double-Check" with Elgin high-capacity zeolites increases soft water output 3 to 10 times.

WRITE FOR BULLETIN 610

ELGIN SOFTENER CORPORATION

180 N. GROVE AVE., ELGIN, ILL.

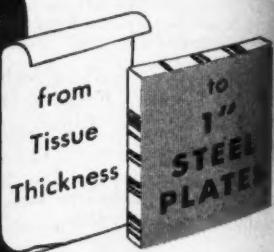
When inquiring check CP 3170 on handy form, pgs. 2-3

Perforated

SHEET
MATERIALS

Metals—Plastics
Fabrikoids
and Others
at

H & K



Unlimited
Choice of Patterns

•
Accurate Holes
Smooth Surfaces

•
Design Facilities
for New Applications

HERE AT H & K, you'll find an intelligent consideration of your industrial problems. Maximum cooperation is afforded designers and product engineers in the creation of Perforated Metals and other materials . . . providing the desired end results at lowest possible cost.

H & K Perforated means an extremely wide choice of sheet materials (coil and plate form, too) at your command. Stainless Steel is a perforating specialty at H & K. Monel, Brass, Bronze and Aluminum are others. Non-Metals include various Plastics, Cellulose, Foil, Masonite and a host of others. Write at once for full information.

Also Remember—H & K Grilles . . . Ultimate in Beauty . . . Utility . . . LONG LIFE!

Harrington & King
PERFORATING CO.

3636 FILLMORE ST., CHICAGO 44, ILLINOIS
114 LIBERTY STREET, NEW YORK 6, N.Y.

When inquiring check CP 3171 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

Nicholson Steam Traps

STOP BACK-UP of CONDENSATE

Operate on
Lowest Temperature
Differential

Repeated comparative tests by large users of traps show that Nicholson traps operate on lowest temperature differential: 5° to 15°.

depending on trap size and pressure. Thus prevent back-up of condensate and keep equipment full of live steam. Installations have increased production of cooking kettles, for example, as much as 30%. Widely specified for preventing damage to thin gauges. Eliminate "cold blow" in unit heaters. Size $\frac{1}{4}$ " to 2"; press. to 225 lbs.

BULLETIN 1047

W. H. NICHOLSON & CO. 181 OREGON STREET
WILKES-BARRE, PA.
Valves ★ Traps ★ Steam Specialties

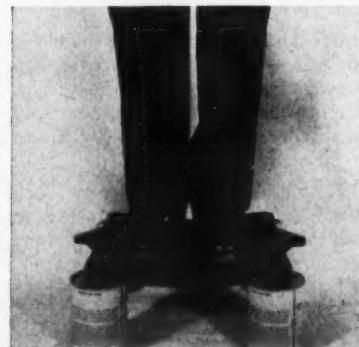
When inquiring check CP 3172 on handy form, pgs. 2-3

Here is the pair
for clean, dry
air . . .

**JOHNSON
AFTERCooler**
Used where moisture is vaporized by the heat of compression. Circulates around the line and water vapor so remove them. Simple in design, highly efficient in performance.

SIZES
FOR ALL
NEEDS
WRITE FOR
BULLETIN

**JOHNSON
SEPARATOR**
Removes more than 99% of all water, dirt and oil from compressed air or steam. Combines the two best principles of separation—first allows air to expand slightly, then changes flow direction with the "Thousand Baffles". Model illustrated is the newest idea in separator design, with self-draining trap mechanism built right in.



Plastic filter frames are tough

facturer reports. Tough and not breakable in handling or cleaning. Economical.

Description: Special plastic construction.

Source: Produced by Hercules Filter Corporation, Dept. CP, Paterson, N. J. . . or for more information check CP 3175 on handy form, pages 2 and 3.

PROCESSING EQUIPMENT

section of the pipe contour, as in the case of a small opening near a union, or the joint between two sections of asbestos pipe-covering. Can be applied in poorly-lighted areas and carried to light for reading.

Description: Made of steel with black electro rustproof finish and etched numerals which are filled with white enamel. Measures $2\frac{3}{4} \times 4\frac{1}{2}$ " when closed. Leatherette case is optional.

Consists of two movable plates. Double contacts of lower plate (see illustration) are placed against outer contour of pipe or conduit. Movable section of second plate is then turned until single contact touches pipe. Markers on gauge face then show size. Handy inch and metric rules are etched along both edges for added utility.

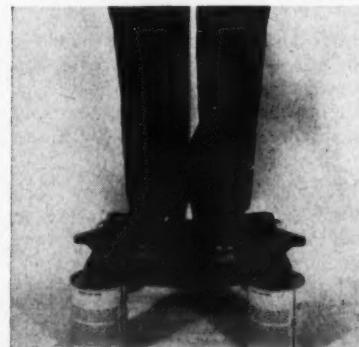
Source: Three Point Industries, Dept. CP, 3767 N. Racine Ave., Chicago 13, Ill. . . or for more information check CP 3174 on handy form, pages 2 and 3.

Filter at 300°F with rugged plastic filter frame . . .

defies acids, alkalies, chemicals in many filterable materials

Uses: Plastic filter frames for resistance to both acids and alkalies, even at higher temperatures. For withstanding chemicals in many filterable materials.

Features: No softening or deterioration when tested at 300°F, manu-



facturer reports. Tough and not breakable in handling or cleaning. Economical.

Description: Special plastic construction.

Source: Produced by Hercules Filter Corporation, Dept. CP, Paterson, N. J. . . or for more information check CP 3175 on handy form, pages 2 and 3.

This catalog insert describing the Hapman Cable-Veyor sent on request.

HAPMAN CABLE-VEYOR Dustproof Self-Cleaning FOR FLOWABLE MATERIALS

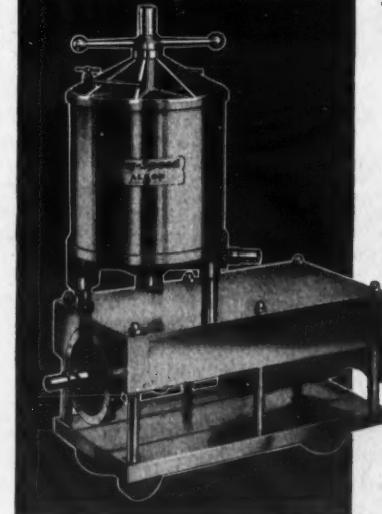
Designed and engineered to meet your requirements for a dust-proof, corrosive resistant and extremely sanitary conveyor to handle all types of FLOWABLE materials at low cost per cubic foot. Positive material movement is secured at speeds from 5' to 300' on vertical, horizontal or inclined planes and around curves. Oversize flights scrape inside of steel tube regardless of direction or path of travel.

HAPMAN CONVEYORS, Inc.

2405 W. McNichols Rd. • Detroit 21, Mich.

When inquiring check CP 3176 on handy form, pgs. 2-3

It's an ALSOP FILTER



For
POSITIVE FILTRATION
DEPENDABLE
TROUBLE-FREE
FOR EVERY LIQUID PRODUCT

Dependable, trouble-free Alsop "SEALED-DISC" Filters will save you time, labor and money — whether you filter in variety or volume; for the simple removal of dirt, fiber, undesirable particles; or for ultra-fine, brilliant polishing. Thousands of users are sold on their convenience and speed of operation — their positive filtration results.

There's an Alsop Filter for every liquid product. Check their job — tested features, mail coupon for your copy of the New Alsop Liquid Processing Equipment Catalogue.

Alsop Engineering Corporation
409 Alsop Square
Middletown, Connecticut

Please send me a Free Copy of your New Catalogue.
Name _____
Street _____
City _____
State _____

When inquiring check CP 3177 on handy form, pgs. 2-3

The Johnson Corporation

828 Wood St., Three Rivers, Michigan

When inquiring check CP 3173 on handy form, pgs. 2-3

ALOYCO VALVES

STAINLESS STEEL

prove they can "take it" in Niagara Filters



Niagara Pilot Filter Unit with Aloyco Gate Valves of 18-8SMo stainless steel.

Aloyco Gate Valve No. 111.



"It is a rare occasion when we have to replace one of the Aloyco Stainless Steel Valves," says the Niagara Filter Corporation . . . Yet they say, "The use of Aloyco Valves on these all-stainless steel pilot filter stations puts them to quite a severe test, since these units are rented to all types of companies in the chemical, food, fermentation and process industries and they must withstand the corrosive action and carrying operating conditions of all types of food and chemical liquors. Your Company cannot afford the luxury of frequent valve replacements. Save money. Specify Aloyco Stainless Steel Valves."

ALLOY STEEL PRODUCTS COMPANY, INC.
1302 W. Elizabeth Ave., Linden, N. J.

ALOYCO

*Stainless Steel
VALVES and FITTINGS*

GALE VALVES • GLOBE VALVES
Y VALVES • CHECK VALVES
SAMPLING VALVES • ANGLE VALVES
TANK VALVES
FLANGED, SCREWED and WELDING FITTINGS
GAUGE GLASS FITTINGS

When inquiring check CP 3178 on handy form, pgs. 2-3

For Assured Protection
Against Corrosion

Specify
TYGON
Plastic
PAINT

• Proved over a ten-year period, Tygon plastic Paint coatings offer effective, low cost protection for plant structures and equipment. Resistant to most acids and alkalies (as well as to water, oils, and alcohols) through a temperature range as high as 190° F., Tygon Paint is as easy to use as most ordinary paints. It dries quickly, by solvent evaporation . . . forms a tough, durable, flexible, tight-adhering plastic "skin" that will not chip or flake off, will not oxidize or chemically deteriorate with age.

• Write for free copy of Bulletin 709X showing corrosive handled color range and detailed technical information. Address Plastics & Synthetics Division, The U. S. Stoneware Co., Akron 9, Ohio.

U. S. STONEWARE

Since 1865 • Akron, Ohio

When inquiring check CP 3179 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Link wrenches grip pipe, solid rounds to 2" diameter . . .

serrations in face of each link provide firm hold around entire circumference

Uses: To hold pipe and solid rounds up to 2" diameter.

Features: Produces steady, firm, equalized grip all around pipe surface. Links move in any direction, may be threaded around close-fitting pipes.

Description: Wrench consists of malleable cast iron handle with seven hardened link jaws. Link lock, held in notch near link end of handle, is also hardened.

Link lock pin engages open slot in one of the links. Four links are slotted, providing means for rapid wrench adjustment.

Each link has serrations milled in its face, with handle



Link wrench grips pipe fittings

being used for leverage only. As leverage is applied, each link grips work surface, unlike chain wrenches which have serrations only on wrench handle. Individual links are replaceable.

All types of pipe fittings and unions can be handled. Straddle arrangement of female links provides space into which fitting shoulders seat. Male jaws grasp shoulder as pressure is applied. Wrench may be released by reversing pressure. This simulated ratchet action speeds pipe and bolt work.

Source: Produced by American Machine Works, Inc., Dept. CP, Racine, Wis. . . . or for more information check CP 3180 on handy form pages 2 and 3.

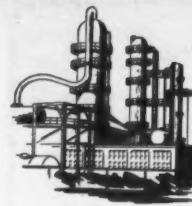
Flexible "Inter-com" system
mixes master and remote
stations on 1 circuit . . .

provides for private conversations, conference with all stations at once, or plant-wide paging

Uses: Provides exceptional flexibility in intercommunication within and between industrial offices and plants, by the manner in which master and remote station hook-ups may be arranged.

Features: For example, by intermixing masters and remotes on one circuit of up to 12 stations the following can be achieved: each master can call masters and remotes; masters can hold a private conference with each other; each master can have its private remote which then can be private from other masters; a remote station can call one

TWO TIMES FASTER
MANY TIMES BETTER
in less floor space



Blue Streak

TWIN SPIRAL MIXING

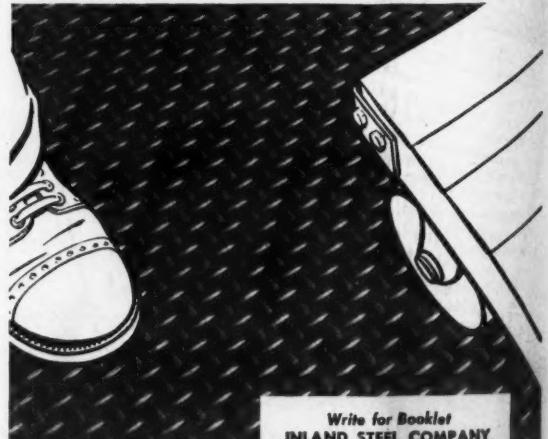
Where process operations call for mixing of dry materials there's nothing better than Blue Streak. This compact mixer provides high capacity production with a saving in floor space.

Faster, more accurate blending is assured through the use of two-speed twin spirals. Mixing is complete and uniform in half the time, resulting in a product of constant quality at lower cost. Sturdy construction provides the added factor of dependability under all work loads. Let Prater tell you what Blue Streak Mixers can do for you. Write now.

PRATER PRATER PULVERIZER COMPANY
1519 S. 55th Court, Chicago 30, Ill.

When inquiring check CP 3181 on handy form, pgs. 2-3

**Safe Movement
OF MEN AND MATERIALS**



Write for Booklet
INLAND STEEL COMPANY
38 S. Dearborn Street
Chicago 3, Ill.

Inland
4-WAY SAFETY PLATE
STOCKED BY LEADING
STEEL WAREHOUSES

* Reg. U. S. Pat. Off.

When inquiring check CP 3182 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

PROCESSING EQUIPMENT

master and answer all masters to which it is connected, but cannot talk with other remotes; a remote can issue a call to a master; one or all of the masters can be hooked up with a booster for use in paging.

Minimum systems can be installed and quickly expanded as requirements grow, without interruption to service.



12-station master unit

button selectors and "dictate-listen-talk" lever.

One or all masters can be hooked up with a booster, also available, for use as a paging system. Master station specifications are as follows: voltage, 117 AC or DC; power output 2.5 watts, power consumption 30 watts. Master and remote specifications: speaker 4" Alnico-V magnet, 13 ohm voice coil; dimensions for master: 12 5/8" x 7 1/2" x 5 1/2" high; for remote: 6 5/8" x 7 1/8" x 5 1/4" high.

Source: System, known as the Con-fer-phone, is made by Mark Simpson Mfg. Co., Inc., Dept. CP, 32-28 49th St., Long Island City, N. Y. . . or for more information check CP 3183 on handy form, pages 2 and 3.

Spring loaded pilot closes solenoid valve mounted in any position . . .

control process equipment, air conditioning systems, air cylinders, water softeners, etc.

Uses: For use with petroleum oils, kerosene, gasoline, water, air and inert gases, at operating pressures from 20 psi to 250 psi.

Features: All internal metal parts are brass or stainless steel. Soft synthetic inserts prevent leakage, and spring loaded pilot insures positive closing with the valve mounted in any position. Diaphragm is made of tough coated-nylon to assure long life.



Bronze body solenoid valve

capacities; includes line drawings.

Source: Series M-3 valves are made by Skinner Electric Valve Div. (Skinner Chuck Co.), Dept. CP, Norwalk, Conn. . . or for more information check CP 3184 on handy form, pages 2 and 3.

Description: Normally open, normally closed, and directional flow control types are available with full $\frac{3}{8}$ " orifice and $\frac{3}{8}$ " or $\frac{1}{2}$ " NPT ports. All Series M-3 valves may be used for continuous or intermittent duty, have been operated up to 300 cycles per minute on air.

Valves are 5 1/2" high x 2 5/16" x 3 13/16"; weigh approximately 3 3/4 lbs. Maximum power consumption is 10 watts.

Bulletin 493 gives detailed information as to sizes, ca-

pacities; includes line drawings.

Source: Series M-3 valves are made by Skinner Electric Valve Div. (Skinner Chuck Co.), Dept. CP, Norwalk, Conn. . . or for more information check CP 3184 on handy form, pages 2 and 3.

their LONG LIFE makes LAPP PORCELAIN RASCHIG RINGS

the most economical tower packing you can buy

THE cost of packing for chemical towers must be based on original cost of the packing against length of service, plus labor cost for cleaning and repacking, and lost production time. Because they are stronger and smoother, Lapp Porcelain Raschig Rings last longer . . . they are the most economical ceramic rings you can buy.

STRONGER, NON-POROUS PORCELAIN. Lapp Raschig Rings are made of solid Lapp Chemical Porcelain, a dense, thoroughly vitrified, pure, iron-free ceramic material of zero porosity . . . permits no absorption of liquids so avoids disintegration and crumbling.

SMOOTHER SURFACE. Without benefit of glazing, Lapp Porcelain is hard and smooth, easy to clean—and stays clean longer.

Lapp Rings are available in $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ ", 1", $1\frac{1}{4}$ ", $1\frac{1}{2}$ ", 2" and 3" sizes. Write for detailed description, prices, samples. Lapp Insulator Company, Inc., Process Equipment Div., 166 Maple St., LeRoy, N. Y.

Lapp

PROCESS EQUIPMENT

CHEMICAL PORCELAIN VALVES • PIPE • RASCHIG RINGS
PULSAFEEDER CHEMICAL PROPORTIONING PUMPS

When inquiring check CP 3185 on handy form, pgs. 2-3

• SPRAYING • WASHING • RINSING • COOLING • AIR CONDITIONING

Get the most out of your Spraying Equipment with minimum power... with efficient spraying.

Use Yarway Nozzles. No internal vanes or other restrictions to clog or hinder flow. Two types—Yarway Inolute-type producing a fine hollow spray with minimum energy loss, and Yarway Fan-type producing a flat fan-shaped spray with time-saving slicing action for cleaning.

Wide range of standard sizes and capacities. Cast or machined from solid bar stock.

Thousands in use. Write for Bulletin N-616.

YARWAY SPRAY NOZZLES

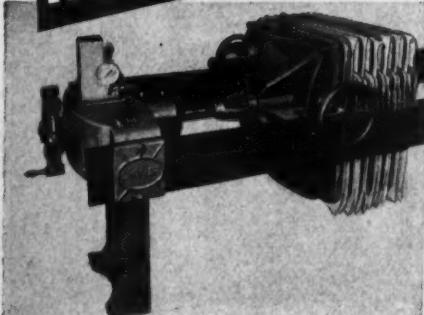
YARNALL-WARING COMPANY
125 Mermaid Avenue, Philadelphia 18, Pa.



When inquiring check CP 3186 on handy form, pgs. 2-3

No More Hard Labor in Closing Filter Presses

NEW SHRIVER
HYDRO-KLOSER



EASY TO OPERATE

Quick manipulation of the locking ring on the hydraulic ram and a few easy hand strokes on the pump—that's practically all there is to closing or opening a filter press—equipped with a Hydro-Kloser.

T. SHRIVER & COMPANY, Inc.
846 HAMILTON STREET • HARRISON N.J.

When inquiring check CP 3187 on handy form, pgs. 2-3

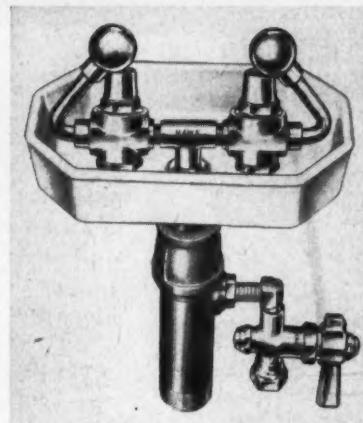
PROCESSING EQUIPMENT

Fountain and shower wash chemicals from eyes, clothing . . .

prevent permanent injuries by instant flooding with water

Uses: Two styles include: 1) Eye-wash fountain and 2) combination eye-wash fountain and high-volume shower, for quickly diluting and washing chemicals and other foreign matter from eyes and clothing in times of emergency.

Features: Aids realization of better safety records, providing effective safe-



Eye-wash fountain

guard against permanent injuries. Instantly floods eyes or clothing with maximum water.

Description: Model illustrated operates by twisting control valve. Two specially designed angle-stream heads direct double streams of clean water into eyes. Pre-determined setting of a highly-sensitive, fully automatic regulator controls both pressure and volume.

A second model combines eye-fountain with a high-volume overhead shower. A sudden drenching bath is delivered by pulling a metal cord. Used in ample time, it washes away chemicals before they penetrate clothing. Fountain operates separately by foot-treadle.

Source: Haws Drinking Faucet Company, Dept. CP, Fourth & Page Sts., Berkeley 10, Calif. . . or for more information check CP 3188 on handy form, pages 2 and 3.

Stand tilts 50, 55 gal. barrels for easy draining . . .

barrels can be locked in stand without being lifted

Uses: To hold barrels so that they can be easily tilted for draining.

Features: Barrels need not be

ARROW QUALITY WOOD TANKS



Built from Tidewater Red Cypress, California Redwood, Douglas Fir and Long Leaf Yellow Pine to meet the exact needs of the Chemical Processing Industry.

Related products: Degasifiers, Suction Filters, Wood Stacks

and Conduits, Plates and Frames for Filter Presses.

Send us your inquiries and drawings. We can help you design a unit to meet your needs.

Write for a copy of "Wood Tank Engineering"—a complete twenty-six page manual for tank buyers and users.

ARROW TANK CO., INC.

8 Barnett St. Buffalo 15, New York

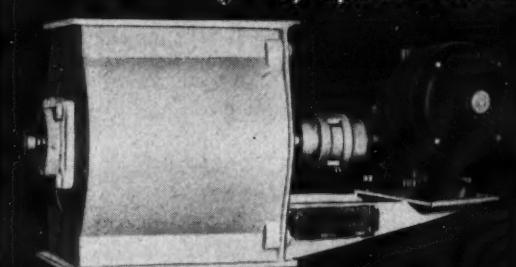
Since 1861 — Three Generations of Tank Building Experience

When inquiring check CP 3189 on handy form, pgs. 2-3

dual purpose

ROTARY FEEDERS

by Sprout-Waldron



control the rate of flow in handling bulk materials by functioning as percentage feeders. Ideal when used ahead of grinders, mixers, elevators, etc.

Installed underneath bins and storage tanks, these units serve as air locks as well as proportioning feeders . . . can be specified for many uses in the process industries.

Also see Sprout-Waldron for conveyors, variable speed drives and chain drag feeders.

* WRITE FOR LITERATURE *

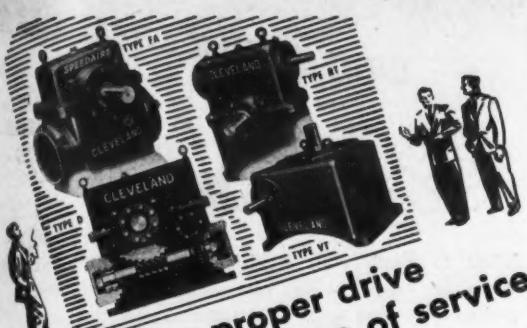
SPROUT-WALDRON & COMPANY

Manufacturing Engineers

10 WALDRON STREET

MUNCY, PA.

When inquiring check CP 3190 on handy form, pgs. 2-3



To select the proper drive
for any type of service

GET your copies of the latest Cleveland catalogs for full information on all types and sizes of worm gear speed reducers—including rating tables, dimensional diagrams and data for both standard and fan-cooled units. Ask for Catalog 200 for standard drives and Catalog 300 for Speedaire (fan-cooled). The Cleveland Worm & Gear Co., 3257 E. 80th St., Cleveland 4, O.

CLEVELAND
Worm Gear
Speed Reducers

For personalized service: Write
John E. Millikan
Cleveland exch.
Vulcan 3-4560

When inquiring check CP 3191 on handy form, pgs. 2-3

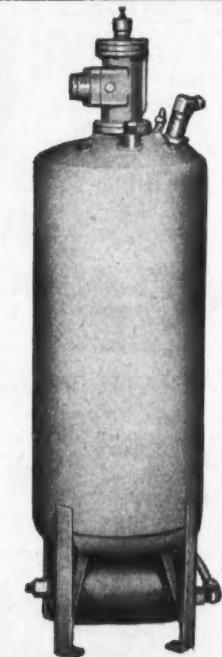
INSTANTLY COOLS WATER ALCOHOL—OIL

through rapid heat transfer

The exceptionally high capacity of the new Temprite industrial liquid cooler is the result of rapid heat transfer, made possible with the famous Temprite "flooded" cooling principle. A complete system may be installed to cool water, light oils, alcohol and certain chemicals, without the necessity of employing space-consuming storage tanks. For example, the compact 54"-high Temprite will deliver 1185 gallons per hour, reducing the temperature from 60° to 40°.

WRITE FOR BULLETIN
SINCE 1929

Temprite
PRODUCTS CORP.



13 PIQUETTE, DETROIT 2

When inquiring check CP 3192 on handy form, pgs. 2-3

SEPTEMBER, 1949

PROCESSING EQUIPMENT

lifted when being placed in barrel stand.

Description: Steel U frame is mounted on steel angles in such a way that frame can be lowered until band can be fastened about barrel.

Barrels can be locked in horizontal,



Tilting barrel stand

vertical, or 45° positions. Handles 50 and 55 gallon barrels. Known as Western Safety Barrel Stand.

Source: Produced by Henry H. Paris Distributor, Inc., Dept. CP, Houston, Tex. . . or for more information check CP 3193 on handy form, pages 2 and 3.

Geared couplings can
be disassembled
in 7 secs . . .

compact units available in $\frac{3}{4}$ ", 1", $\frac{1}{2}$ ", 2" and $\frac{5}{8}$ " sizes

Uses: To serve as geared couplings in power transmission systems, between motors and pumps, agitators, compressors, etc.

Features: Has but seven parts. Simplicity and compactness reduce maintenance, save space.

Description: Made of forged high-carbon steel. Internal teeth run full working length.

Neoprene seal keeps oil in, dirt out. Held in place with garter spring, seal has sufficient resiliency to compensate for any slight unevenness of shaft.

It is reported that sleeve may be removed in 7 secs. Couplings are available in $\frac{3}{4}$ ", 1", $\frac{1}{2}$ ", 2" and $\frac{5}{8}$ " sizes.

Source: Sier-Bath Gear & Pump Co., Dept. CP, North Bergen, N. J. . . or for more information check CP 3194 on handy form, pages 2 & 3.

NEVA-CLOG

Permanent Metallic Filter Medium
with Better Resistance to Corrosion
Erosion, Heat, Pressure, Blinding



Enlarged view showing general construction of Neva-Clog; two stainless steel sheets arranged to give high flow rates, effective filtration and full retention of solids on the surface. Above — Neva-Clog applied on a large Vallex Filter Leaf.

RIGID—DURABLE NON-PLUGGING EASY TO APPLY

CLEAN and BACKWASH

Neva-Clog effectively holds back solids and passes clear liquids, without blinding or clogging; permits use of filter aids. Removal of solids by sluicing, backwashing or blow-back is quick and easy. Outlasts woven metal screens; withstands corrosion, erosion, scraping, chafing, pressure and temperature better than any other filter medium; is easy to insert in any equipment.

Neva-Clog can be fabricated of any metal in flat plates, discs, cylinders or other shapes for any type of filter or for bases in ion exchange or other packed towers, percolation extraction, absorption, separation and other equipment. Write for literature and sample.

W. S. ROCKWELL COMPANY
220 ELIOT STREET • FAIRFIELD, CONN.

When inquiring check CP 3195 on handy form, pgs. 2-3

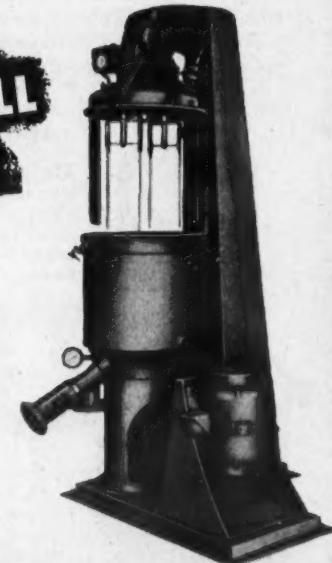
Mix Paste Type Materials More Uniformly—Much Faster

with This New
ABBÉ—DISPERSALL
Paste Mixer

This triple action mixer for pastes and heavy materials employs a combination rotary scraper and agitator mechanism mounted in the cover and a radially ribbed mixing disc in the bottom of the container to disintegrate, disperse and scrape the material from the sides rapidly.

Experience shows that pastes ordinarily requiring a long cycle of slow mixing can be processed with a saving of 60 to 80 per cent in normal processing time.

Provided with heavy cover and jacket, the Abbé Dispersall Paste Mixer is ideally suited for either pressure, vacuum or high temperature operation. Capacities ranging from $5\frac{1}{2}$ to 330 gal. Write for details.



ABBE ENGINEERING CO.
46 CHURCH STREET, NEW YORK 7, N. Y.

When inquiring check CP 3196 on handy form, pgs. 2-3

Complete

Jacketed Pipe and Fluidometer Systems

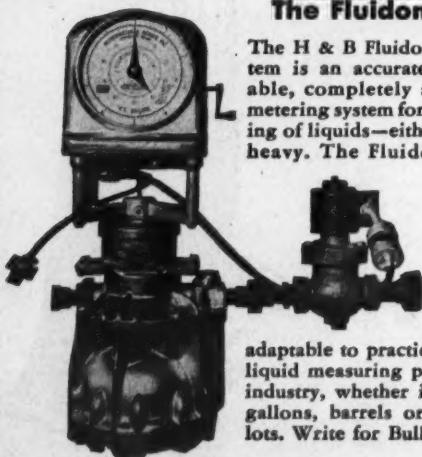
For All Liquid Handling Problems



H & B Jacketed Pipe Systems are engineered and manufactured to meet every requirement of dependable and economical processing in operations where the maintenance of uniform temperature in the process pipes is highly essential. Regardless of whether the product being handled requires a hot or cold temperature, or what heating or cooling medium is used, H & B Jacketed Pipe and Fittings help assure efficient production. Write for Bulletin S-47.

The Fluidometer

The H & B Fluidometer System is an accurate, dependable, completely automatic metering system for the batching of liquids—either light or heavy. The Fluidometer is



adaptable to practically every liquid measuring problem in industry, whether it involves gallons, barrels or tank car lots. Write for Bulletin F-46.

HEHERINGTON & BERNER INC
711 Kentucky Avenue, Indianapolis 7, Indiana

When inquiring check CP 3197 on handy form, pgs. 2-3

Page 106

PROCESSING EQUIPMENT

Pressure-fed roller applies lacquers, stains, primers, flats, enamels . . .

Uses: To apply lacquers, stains, primers; flat, semi-gloss and glossy paints; stipple and water paints; dry wall construction paints; metallic paints, etc.

Features: Lamb's wool cover has springy, resilient surface that reaches into rough plaster, brick, stucco, and concrete, yet puts satin finish on smooth surfaces such as metal, sanded wood, etc.

Description: Roller is cast in special plastic, is unaffected by thinners. Spiral grooving provides better paint distribution. Feed tube is manufactured from stainless steel, is machine grooved for better feed. Handle is 1-piece magnesium casting, contains finger-tip control valve. Entire roller head assembly may be obtained separately, for use with any hose and pressure pot.



Pressure-fed roller speeds painting

Pressure tank has 3-gal. capacity, contains 2" heavy brass pump, pressure gauge and air release valve. Complete unit comprises pressure tank, 16' of neoprene paint hose, roller assembly, cleaning equipment and 2 extra roller covers. Identified as Model '400' pressure-fed roller.

Source: Produced by The James Warren Co., Dept. CP, 1511 W. Florence Ave., Inglewood, Calif. . . or for more information check CP 3198 on handy form, pages 2 and 3.

Plunger and diaphragm pumps handle viscous liquids, pulps, sludge, residues . . .

units pass bulky debris, will not air-bind, operate efficiently on suction lifts to 20'.

Uses: Pumps transfer any liquids that are too heavy for self-priming centrifugals. Pump viscous and clotted materials, trash-laden liquids, thick residues, etc. Remove sludge from settling-tank hoppers, transfer materials from digestion tanks to sludge beds, and perform all similar tasks.

Features: Pumps will pass large quantities of bulky debris, will not readily air-bind or gas-bind, and operate efficiently on suction lifts as high as 20'.

Description: All pumps have large ball valves. Balls are guided by tapered ribs in unique valve chambers, will not clog despite presence of suspended solids, pulps, fibers. Normal-duty, engine-drive diaphragm pumps are supplied in two 3" models, three 4" models. Capacities from 3000 to 9000 gph.

Normal-duty walking-beam single diaphragm and single plunger pumps are available in 3" and 4" sizes. Double

CRUSH BULK CHEMICALS

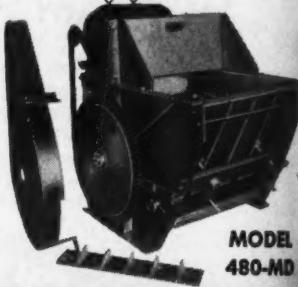
**AT HIGHER SPEEDS—
LOWER COSTS**



Want to crush your semi-friable and solidified chemicals faster, at less cost, and get exactly the particle sizes you want for processing, bagging and mixing? G-W Breakers handle up to 50 tons per hour, eliminate dusting, minimize loss of materials. Socket-type drum chips off material—adjustable comb plates regulate particle sizes. Picks renewable.

Write today for new Bulletin 482 for complete information.

⑤5641



MODEL
480-MD

GIFFORD-WOOD CO.

NEW YORK 17 Since 1814 CHICAGO 6
420 Lexington Ave. Hudson, N.Y. 565 W. Washington St.

When inquiring check CP 3199 on handy form, pgs. 2-3

**UNBEATABLE
PERFORMANCE**

"1001" uses in
INDUSTRY

APCO
TURBINE-TYPE



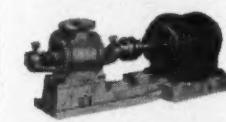
**LOW VOLUME
HIGH HEADS**

The
ONLY
MOVING PART
in the APCO

PUMPS



APCO SINGLE STAGE



APCO TWO STAGE

These, the simplest of all pumps, are of the multivane, double-suction, hydraulically balanced turbine-type and unsurpassed for long-lived service on low capacity, high head duties. Ideal for a wide variety of duties in industry. Embody an impressive array of valuable characteristics found only in this highest development of the Turbine-Type Pump. Available, too, are Water-Jacketed APCOs for hot liquids and Stainless Steel (in stock) APCOs for corrosive liquids.

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"M"

AURORA CENTRIFUGAL PUMPS
A complete line, notable for streamlined coordination between impellers and shells, including Single and Two Stage Horizontally Split Case, Side Suction, Vertical, Non Clog, Sump, Mixed Flow, Special Design, etc.

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**AURORA
Always
PUMPS**

AURORA
PUMP COMPANY

62 Loucks Street, AURORA, ILLINOIS

When inquiring check CP 3200 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

CORROSIVE STAINLESS STEEL FASTENINGS DO THE JOB *Better*



**There's No Substitute for
Stainless Fastenings in the
Chemical Industry!**

The tougher the specification, the better suited stainless fastenings are in chemical processing! Permanent, corrosion-resistant, easy to break down for cleaning, safe and sanitary . . . and best of all, stainless cuts costs with longer life and lowered maintenance.

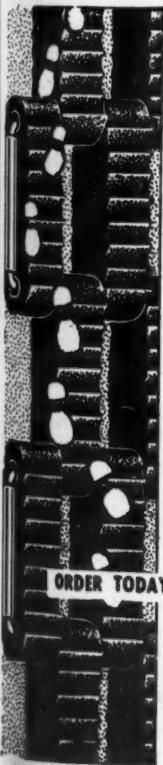
7,000 Varieties

Anti-Corrosive, America's oldest and largest supplier dealing exclusively in stainless fastenings, carries this tremendous stock for your convenience . . . plus a special order service available for occasional odd sizes.

Write Today for Folder D-49 for Further Information!

Anti-Corrosive
Metal Products Co., Inc.
Manufacturers of STAINLESS STEEL FASTENINGS
CASTLETON ON HUDSON, NEW YORK

When inquiring check CP 3201 on handy form, pgs. 2-3



SAFE DURABLE reduce worker fatigue **AKRO-MATS**

Made of especially tough, rubber composition links $\frac{1}{8}$ " thick on 12 gauge galvanized spring wire, this floor covering gives positive under-foot traction on wet, oily, greasy and other slippery surfaces.

Extra resilient Akro-mats help to reduce worker fatigue and accidents, increase efficiency.

Special or stock sizes lie flat, roll up easily for cleaning. Open accounts invited.

NO.	SIZE	PRICE EACH
3000	14" x 21"	\$2.50
3001	16" x 24"	3.75
3002	18" x 29"	4.90
3003	22" x 35"	7.50

Size to specification: \$2.00 per sq. ft.

ORDER TODAY DIRECT OR SEND FOR COMPLETE DATA

A PRACTICABLE GUIDE TO SAFETY
GENERAL SCIENTIFIC
EQUIPMENT COMPANY
TESTED INDUSTRIAL SAFETY PRODUCTS

2125 W. Huntington St., Philadelphia 32, Pa.

When inquiring check CP 3202 on handy form, pgs. 2-3

SEPTEMBER, 1949

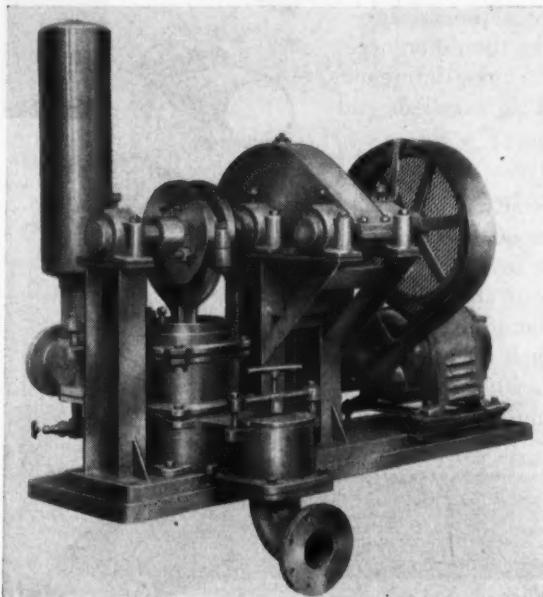
PROCESSING EQUIPMENT

diaphragm and double plunger models are produced in 4" sizes. All are motor driven or arranged for belt drive. Pump 3000 to 9000 gph.

All normal-duty pumps are base-mounted, but are provided with steel wheels or pneumatic tires if desired.

Heavy-duty walking-beam plunger pumps are engine-driven, supplied in 3" and 4" single models, 4" double model. Capacities range from 4200 to 6500 gph. Base mounted, or with steel wheels or pneumatic tires.

Eccentric drive plunger sludge pumps have 2 types of



Eccentric drive plunger sludge pump

power arrangements. Type 'PE' has standard horizontal motor, V-belt transmission, reduction gearing. Type 'RPE' has gearhead motor and roller chain drive. Supplied with variable-speed motors where required. Available in 4" and 6" sizes, with capacities from 3000 to 14,400 gph.

All models pump slow seepages or full capacity without adjustment or change in speed.

Source: Marlow Pumps, Dept. CP, Ridgewood, N. J. . . . or for more information check CP 3203 on handy form, pages 2 and 3.

Twin pipe-line strainers feature large basket-area and straight-line flow . . .

either of 2 strainer chambers may be shut off and cleaned without interrupting flow

Uses: To strain suspended and entrained particles from water, oil and other liquids.

Features: Unit may be cleaned without interrupting flow. Low pressure drop.

Description: Units have 2 strainer chambers in 1 body. Either chamber may be shut off, cleaned separately. Straight-line-flow construction. Hard copper mesh baskets have large perforated area.

Built in sizes to 24" for pressures to 125 and 250 psi. Bodies are Meehanite, with steel plate doors.

Source: Produced by Elliott Co., Dept. CP, Jeannette, Pa. . . . or for more information check CP 3204 on handy form, pages 2 and 3.

PROBLEM: To find a refrigeration compressor blade featuring self-lubrication . . . to be non-gumming and corrosion-resistant . . . and immune to warping.

SOLUTION: Blades of self-lubricating Morganite provided long service . . . no sticking . . . no chemical deterioration.



MORGANITE SELF-LUBRICATING REFRIGERATION COMPRESSOR BLADES

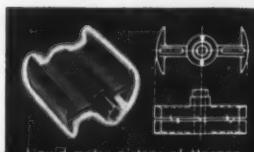
The substantial savings on maintenance and replacement costs made possible in the operation of cooling compressors is only one example of Morganite effectiveness in increasing efficiency. Morganite valves, seals, rings, slides and other self-lubricating components provide a ready solution to many stubborn mechanical problems. Morganite has frequently offered the one practical answer to industry-old problems of design.



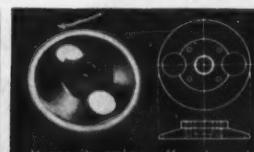
FOR DETAILS consult the Morganite Catalog in Sweets File for Product Designers; for engineering counsel or specific proposals, call in a Morganite sales engineer. There is no obligation.



Morganite
INCORPORATED
LONG ISLAND CITY 1, NEW YORK



Liquid meter pistons of Morganite resist corrosion, will not gum or stick, are non-contaminating.



Morganite Valves offer dependable pressure sealing, are immune to temperature fluctuations.

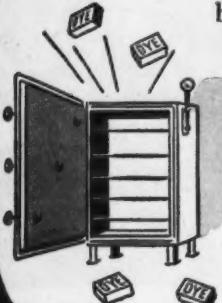
Manufacturers of Morganite Carbon Brushes for all motor and generator applications, and Morganite Carbon Piles

When inquiring check CP 3205 on handy form, pgs. 2-3

ASK
STOKES

If Drying is the Question

"How best to dry it?" is one of the most frequent questions in chemical processing. Its successful answer may make the difference between a profit and a loss . . . the difference between a fairly good and an excellent end-product.



Because of the wide diversity of materials to be dried, Stokes has developed drying methods and equipment for almost anything you can name. Single and double drum atmospheric dryers, rotating or rotary vacuum dryers, warm air shelf dryers, vacuum shelf dryers, freeze dryers . . . these units, in the widest range of sizes, provide the capacities and economies you require.



And the Stokes semi-plant-scale laboratory will test-dry samples for you so the results may be checked before you invest.

Stokes experienced process engineers are ready to work with you on your drying problems.

F. J. Stokes Machine Company,
5974 Tabor Road, Phila., 20, Pa.



Stokes makes Chemical and Food Processing equipment, High Vacuum Pumps and Gages, Vacuum and Atmospheric Dryers, Pharmaceutical equipment, Tablet Machines, Water Stills.

STOKES

KNOWS
HOW

When inquiring check CP 3206 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Place 3-way valves at each end of cylinder to save air . . .

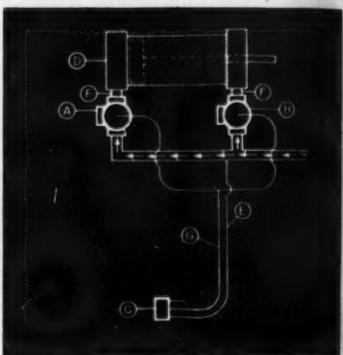
eliminates long lengths of large diameter pipe; lower operating costs

Uses: For a wide range of air cylinder operations, particularly where it is desired to eliminate long lengths of large diameter pipe between valve and cylinder, which must be filled and exhausted with non-productive air.

Features: Impressive production increases and low costs. Long lengths of pipe between valve and cylinder are replaced by short connecting lengths. (Indicated at point F in drawing.)

Description: Instead of conventional mounting of 4-way valve at some distance from the cylinder, this method

places 3-way valves (A & B), one normally open and one normally closed, at each end of the cylinder. Operation is by means of a conveniently located, small pilot valve (C), which can be manually, mechanically or electrically actuated, according to user's needs.



3-way valve eliminates long lengths of piping; saves air

Air supply is received by the pilot valve and dispatched to the masters by means of tubing (E & G). The resultant saving in air with every movement of the piston means appreciably lower operating costs.

The close coupling of the valve to the cylinder increases production because it permits quicker exhaust-dumping and consequent faster movement of the cylinder piston.

Also, operation of the smaller pilot controlling valve is easier.

Mounting by this new method is especially advantageous with valves of $1/2"$ or larger, or with smaller sizes where increased operating speed is required.

The master valve is available in $1/4"$ through $1\frac{1}{4}"$, straight or 3-way, normally opened or closed. For short-stroke, double-acting cylinders, 4-way master units can be supplied.

Source: "Full-Flo" master valves are made by Ross Operating Valve Co., Dept. CP, 120 E. Golden Gate, Detroit 13, Mich. . . . or for more information check CP 3207 on handy form, pages 2 and 3.

Compact, close-coupled, gearless pumps . . .

versatile units give excellent suction lift, can operate against heads up to 150 psi

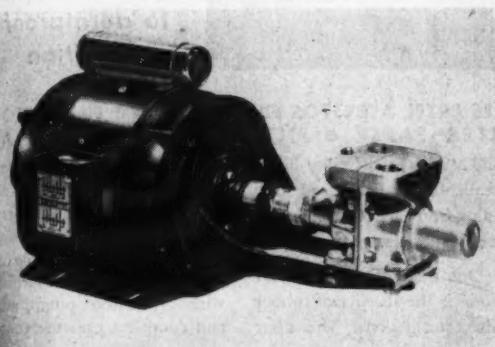
Uses: For pumping operations of all descriptions, where compact, efficient unit is required. Especially designed for manufacturers of original equipment, such as cooling and refrigeration units, carbonators, well units, feed units, etc.

Features: Motor and pump ride on resilient mounts. Motor has automatic thermal overload cut-out.

Description: Pumps have $1/4"$, $3/8"$, $1/2"$ and $3/4"$ ports. Versatile unit can be used for suction lift work.

for simple circulation, and against heads up to 150 psi.

Motors comply with NEMA standards, are capacitor start, induction run in single phase models. Three-phase motors are also available. Supplied in $\frac{1}{4}$, $\frac{1}{3}$, and $\frac{1}{2}$ hp models. Unit rests on sturdy motor base, pump bracket being at-



Compact gearless pump

tached to shaft and bell housing of motor. Motor and pump shafts are aligned when assembled, are connected by heavy-duty flexible coupling.

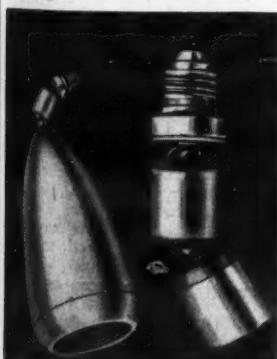
Source: Product of Eco Engineering Co., Dept. CP, 12 New York Ave., Newark 1, N. J. . . . or for more information check CP 3208 on handy form, pages 2 and 3.

**Socket adjusts easily, yet
needs no set-screws to
hold firm position . . .**

holds light bulb or reflector lamp equipped with medium base; heatproof and foolproof

Uses: Screws into any fixed ceiling socket to make it universally adjustable in any direction. For general application. Designed to accommodate any light bulb or reflector lamp equipped with medium base.

Features: Provides a degree of adjustability said to be much greater than heretofore available.



Socket has 360° horizontal and
180° vertical range

For general application, "Swivelines" are available as basic screw-in sockets as shown, or with additional 6" and 12" extension lengths. For supplementary lighting (such as display) socket is equipped with hood and louverclip to accommodate any spotlight or floodlight reflector lamp in standard RHO, RE40, BR40 or PAR-38 bulb shapes and lengths.

As illustrated, the louverclip streamlines the hood, eliminates glare.

Source: Swivelite is made by Amplex Corp., Dept. CP, 111 Water St., Brooklyn, N. Y. . . . or for more information check CP 3209 on handy form, pages 2 and 3.

Your Style

MULTIWALL

Paper Bags

MADE BY

Fulton



FULTON IS GEARED to give
you complete bag service in both Tex-
tile and Multiwall bags. Call on us.

Fulton

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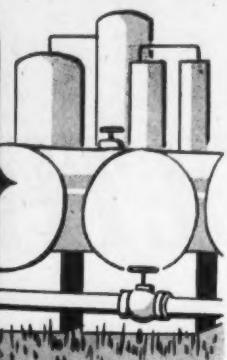


BAG & COTTON MILLS

ATLANTA • ST. LOUIS • DALLAS • KANSAS CITY (KANS.) • DENVER
MINNEAPOLIS • NEW ORLEANS • LOS ANGELES • NEW YORK

Chemical Resistant Coatings

A JOB FOR
McDOUGALL-BUTLER PAINTS



PROTECT TANKS and PIPES

against damage from chemicals and rust with these specially made paints.

- 1 **FERROLASTIC** Special Primers and Ferrolastic Chemical Resistant Coatings.
- 2 **HARDCOTE** water, alkali and weather resistant coatings. 4-hr. dry gloss colors. Ideal for safety area markings also.

Used by many leading chemical processing plants.
Write for technical information.

McDOUGALL-BUTLER CO., Inc.

BUFFALO 5, NEW YORK

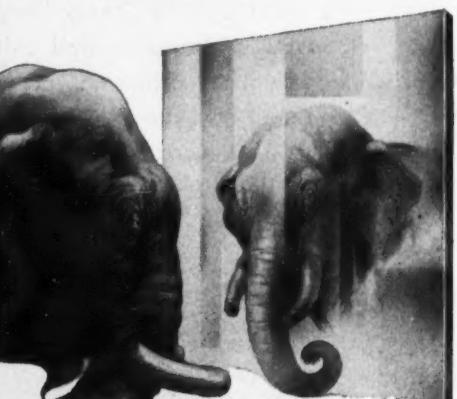
Auburn, Maine

Washington, D. C.

Salem, Mass.



When inquiring check CP 3211 on handy form, pgs. 2-3



How thick should an elephant's hide be?

Thick enough to withstand the attacks of its enemies

That's also true of your stainless equipment... Why pay for more stainless metal than you need?... By using IngAclad you greatly reduce the material cost, yet have perfect stainless protection on the exposed surface... IngAclad consists of a 20% cladding of finest stainless steel bonded by the Ingersoll

Process to a backing of carbon steel.
Write for Special IngAclad Folder and Manual of Fabricating and Welding Procedure.

INGERSOLL STEEL DIVISION
Borg-Warner Corporation
310 S. Michigan Ave., Chicago, Ill.

PLANTS
Chicago, Ill. • New Castle, Ind.
Kalamazoo, Mich.

INGACLAD
STAINLESS-CLAD STEEL

Also Producers of Ingersoll Solid Stainless and Heat-Resisting Steels

When inquiring check CP 3212 on handy form, pgs. 2-3

Page 110

PROCESSING EQUIPMENT

Horizontal turbine has rotor that is solid, one-piece 48" diam. wheel . . .

casing is supported near centerline on pedestals

Uses: Designed to develop 500 bhp at 1750 rpm with 850 to 900 lbs initial pressure, 850°F, when exhausting into a vacuum of 12", or against 2 psig back pressure.

Features: Large, rugged, simple and practically fool-proof.

Description:

Special materials are used throughout to meet requirements. Turbine rotor is a solid, one-piece wheel 48" in diameter, the blades being milled around the periphery of a solid steel forging.

The turbine is equipped with an oil relay actuated constant-speed governor of the poppet type, gear driven oil pump to supply oil for the governor and the turbine bearings, external oil cooler, automatic back pressure trip and standard accessories.

Source: Whiton Machine Co., Dept. CP, New London, Conn. . . . or for more information check CP 3213 on handy form, pages 2 and 3.

Rapid, closely controlled heat with aluminum-top electric hot plate . . .

insulation protects controls and supporting table or bench; two sizes: 12" x 12" and 12" x 24"

Uses: For service in laboratory or plant for evaporation, boiling and general heating.

Features: Control is by means of a patented input controller which automatically compensates for line voltage variations and maintains, within extremely close limits, the working temperature desired.

Plate's built-in controls are protected, as is the supporting table and bench, from heat damage. This is accomplished by 1½" of efficient insulation underneath the heating elements, and by a system of baffles, louvers and air channels which ventilate the lower section in which the controls are housed.

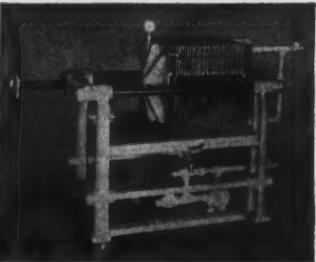
The control panel with its control knob, toggle switch and indicating light is recessed into the body for protection against damage and spillage.

Description: Temperature range is 140° to 850°F. Two sizes are available, 12" x 12" and 12" x 24". Separate units are built for operation on 115 and 230 volts, 50/60 cycle AC.



Aluminum top hot plate

When inquiring check CP 3214 on handy form, pgs. 2-3



ERTEL ASBESTOS DISK

UTILITY FILTER

for coarse prefiltration to germproof filtration

USES ERTEL ASBESTOS FILTER SHEETS • FILTER CLOTH FILTER PAPER • FILTER CLOTH & FILTER AID

★ EU Model Ertel Utility Filter is available in a number of sizes holding from 10 to 100-16" x 16" filtering surfaces.

One of its most important features is the absence of rubber washers or gaskets. The filter

ERTEL FREE LABORATORY SERVICE: Send a sample of your product to us for laboratory test. We will filter it and return for your inspection along with enough recognized Ertel Asbestos Filter Sheets to prove the superior results in your plant.

ERTEL ENGINEERING CORPORATION KINGSTON NEW YORK

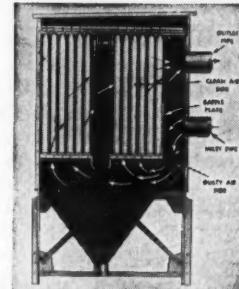
New York City Sales: 40 West 48th Street, N. Y. 19, N. Y.

ASBESTOS FILTER SHEETS • ASBESTOS SHEET FILTERS CYLINDER TYPE DISC FILTERS • PYROGEN FILTERS VACUUM BOTTLE FILLERS • PUMPS • MIXERS • CAPPERS

When inquiring check CP 3214 on handy form, pgs. 2-3



Simple DUSTUBE Design Means Efficient Economical Dust Control



Unusually low maintenance and operating costs result from the simple yet highly efficient DUSTUBE design. A system of cloth tubes filter the air to remove nearly 100% of the dust by weight, yet costs are confined to power for operating the fan and shaker and the occasional replacement of an inexpensive cloth tube. There are no contacts between the cloth tube and metal, therefore tubes last longer. When necessary, tubes can be replaced by one man without tools.

A DUSTUBE is operating at peak efficiency, because the tubes are visible for immediate examination. There is nothing to disassemble for inspection . . . tubes can be quickly checked from the clean air side.

Users report that DUSTUBE keeps their plants so clean with so little attention they practically forget it's there. Investigate the DUSTUBE today. Write for Catalog 72-A.

American dustube

WHEELABRATOR & EQUIPMENT CORP. DUST COLLECTORS

478 S. BYRKIT ST., MISHAWAKA 12, IND.

When inquiring check CP 3215 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

DISK
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PROCESSING EQUIPMENT

Body of unit is stainless steel and top plate is cast aluminum which conducts heat rapidly. Top plate rests on refractory slabs which give support and restrict heat conduction to 70% of its area.

Heating elements are coiled from nickel-chromium alloy with low ratio of watts to surface area. Their imbedded construction maintains proper spacing and assures even heat distribution.

Source: Thermo Electric Mfg. Co., Dept. CP, 476 West Locust St., Dubuque, Iowa . . . or for more information check CP 3216 on handy form, pages 2 and 3.

Distribute air over full
arc of 360°

new square model diffuser, like others in line, gives 35% aspiration; easy snap-on installation

Uses: Aspirates and distributes air equally over the full arc of 360°.

Features: Provides 35% aspiration by virtue of its unique patented design. Room air, equal to more than one-third the volume of the supply air, is drawn into the diffuser where it is mixed with the supply air before passing slowly into the room in a series of multiple planes. This aspiration effect assures complete air distribution throughout the entire room without drafts and without stale air pockets.

Description: Diffuser harmonizes with rectangular and straight-line architectural designs. It is flush with the ceiling and fits readily into standard size acoustical and egg-crate ceilings. It can be combined with all types of lighting fixtures. Type E is available in 9 different neck diameters ranging from 4" to 14".

Quickly installed by a simple snap-on method which permits instant insertion or removal of the complete inner assembly together with equalizing deflector. Long, narrow or angular patterns are easily obtained if other than the full 360° diffusion is required.

Source: Type E Anemostat air diffusers are made by the Anemostat Corp. of America, Dept. CP, 10 East 39th St., New York, N. Y. . . . or for more information check CP 3217 on handy form, pages 2 and 3.

Compact dehumidifier removes
4 gallons moisture per day
from 80° F room . . .

measures only 18" long by 15" wide by 12" high

Uses: To reduce humidity in storerooms, working areas, offices, etc.

Features: Compact unit measures only 18" x 15" x 12". Weighs 125 lbs.

Description: Has capacity for removing 4 gallons of moisture per day under room conditions of 80°F and 70% relative humidity.

Warm, humid air is drawn over chilled surface of finned copper plate coil. Moisture is collected on the surface and drained away. The cool air then passes over warm condenser surface and is recirculated around room.

Powered by 1/3 hp motor, unit requires only 110 or 230 volt AC outlet and floor drain for moisture removal.

Designated as Model 53F "Humidry".

Source: Produced by Carrier Corporation, Dept. CP, Syracuse, N. Y. . . . or for more information check CP 3218 on handy form, pages 2 and 3.

SEPTEMBER, 1949



10-20 Brush Killer
effective on these plants:

Blackberry
Elderberry
Sumac
Osage Orange
Willow Alder
Buck Brush
Wild Cherry
Hawthorn
Black Locust
Poison Ivy
Cherokee Rose
Sage Brush
and many other
woody plants



Nothing is more savory than a juicy blackberry pie or the strong, sweet flavor of elderberry jelly—but the woody growth of these and other plants such as sumac, alder and osage orange can make a "jungle" out of public utility rights-of-way, grazing lands, farms and creek banks unless constantly controlled.

Pittsburgh 10-20 Brush Killer, a hormone type herbicide, containing 2,4,5-T and 2,4-D Esters, has proved much more effective than 2,4-D alone for control of such heavy underbrush and gives a permanent kill with one application when properly used. It may also be painted on fresh-cut stumps of poplar, willow and other persistent trees to prevent re-growth. Combined with Pittsburgh Phenolate-Ö, 10-20 Brush Killer may also be used as a general weed killer.

Pittsburgh 10-20 Brush Killer is the answer to your brush-control problems. Full technical information about this effective chemical, and advice concerning its use, is available for the asking!

WRITE FOR TECHNICAL BULLETIN 302

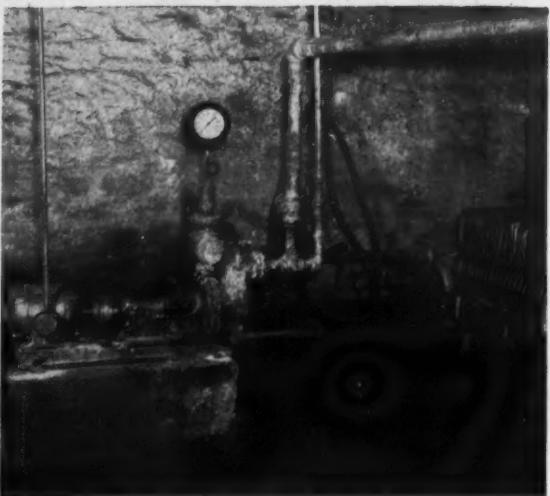
PITTSBURGH AGRICULTURAL CHEMICAL COMPANY
Empire State Building • 350 Fifth Avenue • New York 1, New York

Affiliated with

PITTSBURGH COKE & CHEMICAL COMPANY
1953 Grant Building - Pittsburgh 19, Pa.

COAL CHEMICALS • ACTIVATED CARBON • NEVILLE COKE • EMERALD COAL • PIG IRON • GREEN BAG CEMENT • CONCRETE PIPE AND PRODUCTS

When inquiring check CP 3219 on handy form, pgs. 2-3



...and they specify
LABOUR

Pumping color slurry from vats through the filter press, this LaLabour pump has exactly the inherent characteristics required to do the job right. It's self-priming, which means it can lift the liquid from a lower level, and will handle air. It's centrifugal, which means it delivers maximum volume at the start of a cycle, and maximum pressure as the filter cake is built up.

This is not a large operation, but it's mighty important to the owner of this pump to be sure of consistent, dependable performance. That, for 27 years now, has been a LaLabour specialty in almost every kind of chemical operation in which liquid is moved. It is a fact that one untimely shut down can often cost more in time and material than the pump itself.

Throughout the chemical industry, the men who know how to recognize the needs of a liquid-moving job are quick to understand why they need a LaLabour... and they specify LaLabour.



THE LABOUR COMPANY, Inc.
Elkhart, Indiana, U.S.A.

When inquiring check CP 3220 on handy form, pgs. 2-3

Page 112

PROCESSING EQUIPMENT

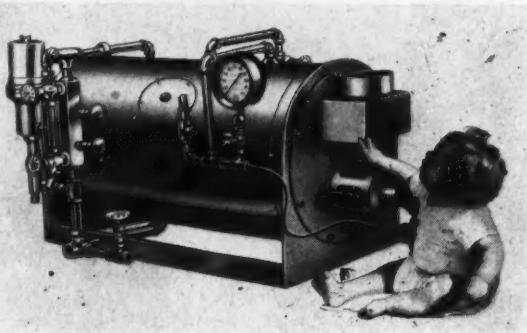
**Small boilers fit waste space,
have 3 to 10 hp capacities
at 100 lbs pressure . . .**

units burn either oil or gas with equal efficiency. **Uses:** To supply steam in small quantities for incidental requirements.

Features: Three hp unit, fully equipped, measures only 4' x 2' x 2'; other models are but a few inches larger.

Description: Boilers are of all-steel construction, fully lagged and steel jacketed. Delivered as complete package, ready to be attached to fuel and water lines. Units burn either gas or oil, with equal efficiency.

Produced in 3, 5, 7, and 10 hp capacities, all units main-



Small steam generator

tain 100 lbs working pressure. Steam generators are of water tube design.

Source: Produced by Steamaster Automatic Boiler Co., Dept. CP, 5819 Compton Ave., Los Angeles, Calif. . . . or for more information check CP 3221 on handy form, pages 2 and 3.

**Plugging, operating speeds
precisely controlled by
centrifugal switch . . .**

selection of models includes types for hazardous location; any standard contact arrangement

Uses: Centrifugal force controls these pilot switches. Changes in speed open and close the contacts, making these switches highly useful in plugging (dynamic braking) overspeed and underspeed protection, non-plugging and motion interlocking. Contribute to safe operation of machine tools, calenders, etc.

Features: Operating range for contacts to open or close runs from a minimum of 125 rpm to 2350 rpm. Safe maximum speed is 3600 rpm. Sealed and permanently lubricated precision ball bearings eliminate bearing maintenance.

Silver-to-silver contacts assure long life. If necessary, replacement is easy. Snap-action contacts to assure quick make-and-brake are available.

Description: Available in any standard contact arrangement. These centrifugal switches with normally open contacts provide zero-speed plugging when used with a magnetic reverse panel. Reverse power is applied to the motor through the reverse panel. As the motor reaches almost zero speed, the centrifugal switch opens the control circuit to the magnetic-reverse panel and disconnects the motor from the line.

Centrifugal switches provide motion interlocking for conveyor systems, stokers with draft fans, belt-type elevators

**WHITNEY
CHAIN**

**Takes the Problem
out of your
Power Drive
Designs**

Because Whitney Chains are extremely flexible and adaptable to a wide variety of designs, they meet practically all transmission requirements. Their positive grip delivers full power without slippage . . . assures uniform speeds. Their rugged construction and hardened-alloy-steel parts provide maximum service with low maintenance. Investigate Whitney Chains and Cut Tooth Sprockets . . . the all steel drives for your designs and equipment. Write:

The Whitney Chain & Manufacturing Company
228 Hamilton Street, Hartford 2, Connecticut

When inquiring check CP 3222 on handy form, pgs. 2-3

**Save with
Pangborn**

**Unit-Type
Dust Collectors**

- Economically priced.
- Shipped assembled to cut installation costs.
- Small size permits locating at dust source, reducing piping cost and power requirement.
- Using multiple unit collectors in place of "central" systems gives more flexibility, keeps various collected dusts separate for salvaging.

Clean out separate "dust pockets" . . . lick dust in small plants, with this Pangborn "CK" Collector. It's small enough to fit any "pocket" . . . yet has the proved efficiency of the large Pangborn Collectors.

Step up workmanship, production and profits with this little Pangborn "CK." It offers you minor upkeep; less filter surface wear; clean, dry discharged air; minimum consumption of space; two-stage separation by proved centrifugal and cloth screen motor-driven screen cleaner. Write for Bulletin 910, PANGBORN CORPORATION, 286 Pangborn Blvd., Hagerstown, Md.

Look to Pangborn for all the latest developments in Dust Control and Blast Cleaning Equipment

**OF THE DUST HOG
from stealing profits with**

**Pangborn
DUST CONTROL**

When inquiring check CP 3223 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

PROCESSING EQUIPMENT

with head pulleys, and chain conveyors with head control in ovens.

To illustrate, a normally-open centrifugal switch, driven by a conveyor, would be located at the junction of a feeder conveyor. The switch is connected in series with the motor controls for the feeder conveyor drive. If the main conveyor stops, the centrifugal automatically stops the feeder and prevents material from piling up.

Centrifugal switches with normally-closed contacts are used as overspeed controls for motors, fans, belt conveyors, etc. Shaft of switch is hardened and ground for extreme accuracy . . . carries fly weights and contact actuating assembly.

In operation, fly weights move laterally as shaft rotates. In two-circuit switch contact-actuating mechanism moves parallel to the shaft in single-circuit switches; contact-actuating assembly rotates through the first few degrees of shaft rotation. A friction device selects one of the two circuits. Then, the switch operates as a single-circuit model.

Switches are available in dust-tight and oil-resistant enclosures for surface or flange mounting; and also in permissible enclosures for hazardous locations.

Source: EE Centrifugal switches are made by Euclid Electric & Mfg. Co., Dept. CP, Madison, Ohio. . . or for more information check CP 3224 on handy form, pages 2 and 3.

No drain piping, duct work required in using 3 gph "spot" humidifier . . .

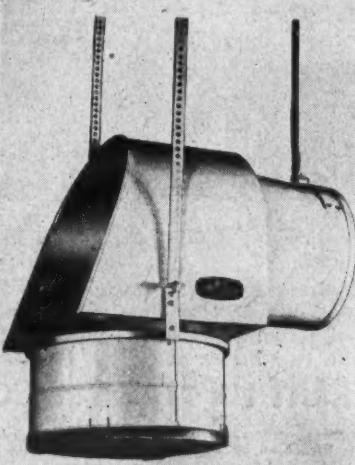
unit may be used in enclosure, or for increasing the humidity obtainable in existing systems

Units: For industrial humidifying. May be used to provide uniform, controlled humidity conditions in an enclosure, for spot humidification, or for increasing the humidity obtainable in existing systems.

Features: Elimination of compressors, expensive air or drain piping and duct work.

Description: Model 30 evaporates approximately 3 gallons of water per hour.

Electrical consumption is approximately 230 watts. As with this manufacturer's other equipment, all that is needed for connection is a city water supply and electrical connections.



Typical installation of 3 gph humidifier

Source: Model 30 Humidifiers are made by Walton Laboratories, Inc., Dept. CP, 1186 Grove St., Irvington, N. J. . . or for more information check CP 3225 on handy form, pages 2 and 3.

SEPTEMBER, 1949

S truthers
Wells

MANUAL OR HYDRAULIC

Patented

Quick Opening DOORS

Now Available in Two Types

HINGED



This Hinged type door is equipped with an hydraulically operated locking ring mechanism. The door is mounted on anti-friction bearings for easy movement.

OVERHEAD



Overhead type Quick Opening Door shown in the sealed position.



Manually operated Hinged Quick Opening Door is shown in the open position.



Manually operated door in the closed position. Although this photograph shows the door flange riveted to the vessel, most models are welded.



Door in the process of being lifted overhead demonstrates the small area required for the operation—a great advantage when floor space is limited.



Complete freedom of floor space for rapid charge of cylinder is permissible when door is in full open position.



For quick opening of the door (above), the locking ring is contracted. When door closes, the locking ring is expanded.

Simplicity and ease of operation are combined in the Struthers Wells Quick Opening Door—making it a truly significant advancement in the design of pressure vessels for every industry. This development makes for easier handling, faster opening and closing, less lost time and long reliable service.

Key to efficient operation is a split ring, fitting in a circular groove in the door frame. The ring is operated either manually or hydraulically.

A safety device is incorporated so pressure cannot be applied to the vessel if locking ring is not properly seated. Also, it cannot be opened until pressure is relieved. A motor driven pump unit for actuating cylinders is included on each hydraulic model.

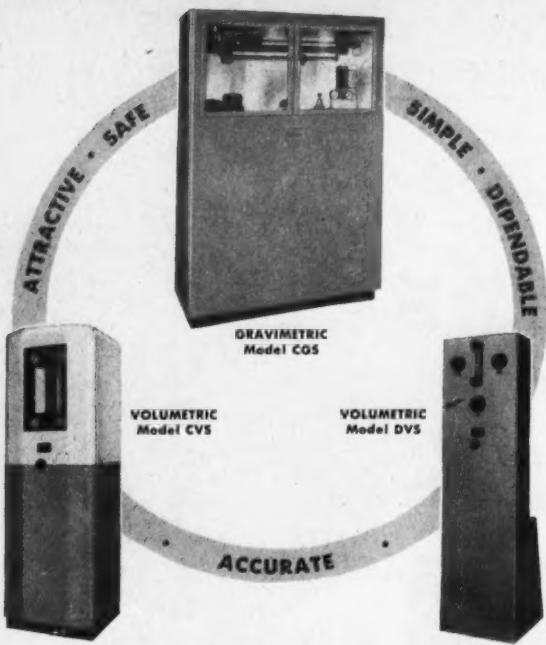
Write for the new Quick Opening Doors Bulletin, No. T-1200.

STRUTHERS WELLS Corporation

Plants at Titusville, Pa., Warren, Pa.

PROCESS EQUIPMENT DIVISION
TITUSVILLE, PENNSYLVANIA

When inquiring check CP 3226 on handy form, pgs. 2-3



A COMPLETE LINE

BUILDERS Chlorinizers

New units for metering chlorine gas and producing chlorine-water solutions for process use and for controlling slime and mussel growth in central power stations and industrial applications. Accurate, safe, and simple — Builders Chlorinizers are the products of Builders-Providence, Inc., a company that has specialized in equipment for metering and controlling flow for more than 55 years and with whom excellence of design and manufacture has been a tradition since 1820. For full information and descriptive bulletins, address Builders-Providence, Inc. (Division of Builders Iron Foundry), Providence 1, R. I.

BUILDERS PRODUCTS

Flow meters and controllers . . . mechanical and differential . . . for liquids, steam, air, gas, and dry materials.

BUILDERS PROVIDENCE Instruments

When inquiring check CP 3227 on handy form, pgs. 2-3

Page 114

PROCESSING EQUIPMENT

Small parts cleaned and dried in 12 minutes in completely automatic machine . . .

continuous reversing of baskets takes place only in solutions; operation is smooth, easy

Uses: Designed for automatic cleaning of parts of small instruments, gauges, clocks; also ball-bearings, jewels, various related precision components.

Features: Provides fully automatic operation in moving parts through the cleaner in the first jar, through the rinses in the second and third jar, and through drying chamber, which is the fourth and last stop in the machine. A complete cleaning cycle requires only 12 minutes, a span determined by the maker's engineers as the most desirable interval.

Automatic reversing motor makes possible maximum efficiency by continuous reversing of the baskets in the solutions only. Centrifugal method employed in rotating baskets eliminates air pockets which cause stains and spots.

Description:

Machine employs hydraulic and mechanical operation for smooth, easy action. One-direction spin-off, above the solution level in each jar, is automatically controlled. Result is extremely thorough cleaning and maintenance of solutions in better condition for longer periods of time. In the drying chamber, too, there is controlled one-direction rotation, with drying results heightened by means of a motor-driven fan.

Large basket measures $2\frac{1}{2}$ " ID x $1\frac{3}{4}$ " deep. Each of three inserts measure $2\frac{3}{8}$ " ID x $\frac{5}{8}$ " deep. Each sub-basket in inserts measures $\frac{3}{4}$ " ID x $\frac{1}{2}$ " deep. Smaller basket measures $2\frac{1}{2}$ " x $1\frac{1}{8}$ " deep. Divider partition for smaller basket measures $1\frac{3}{4}$ " ID x $\frac{1}{4}$ " deep.

Source: L. & R. Mfg. Co., Dept. CP, 577 Elm St., Arlington, N. J. . . or for more information check CP 3228 on handy form, pages 2 and 3.

No breakage or fatigue when stainless steel rings are used in die casting . . .

retain efficiency after 8 months of service; seal the plunger efficiently, force metal into die segments

Uses: Typical of applications is use by a Chicago manufacturer of die-casting machines. These are plunger-injection type machines, where ring and plunger operate partially submerged in molten metal.

Features: High polish on both ring surface and cylinder walls is a result of dissimilar metal surfaces. Metal is free from stresses and distortions. Elimination of "blow-by" and "scoring". Less friction, on the same principle that dissimilar metals produce less friction in bearings.

Description: Stainless steel rings are manufactured by

GET DETAILS ABOUT THE SANITARY COOKER-MIXER

GROEN
STAINLESS STEEL
STEAM JACKETED
TWIN-SHAFT
MIXER KETTLE

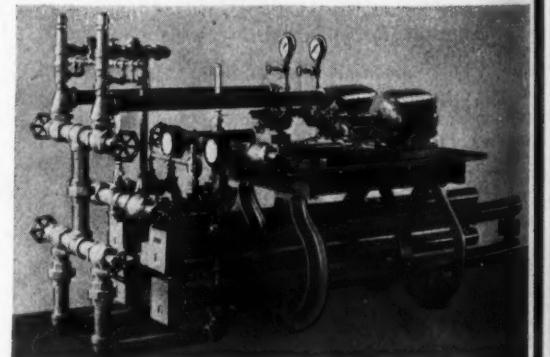
Investigate MODEL T1 completely. SANITARY duty, extra-rugged construction CONFORMS TO THE RIGID HEALTH DEPT. REQUIREMENTS. Fully vertical motor drives two (1) — a slow speed shaft extra-large shovel type and (2) — a secondary speed shaft equipped any of a variety of blenders or beaters. With GROEN save removable couplings. AGITATOR PARTS DEMOUNTABLE FEW SECONDS easy cleaning yet cannot be apted in open. Write for details.



GROEN MFG. CO. 4531 W. Armitage Av. Chicago 39, Ill.

half a century of fine kettles

When inquiring check CP 3229 on handy form, pgs. 2-3



Have You a Heating Job Like THIS?

Illustration shows special Fuel Oil Pumping and Heating Unit, capacity 3 gallons per minute of No. 6 fuel oil at 100 lbs. pressure, 80-180° F., equipped with two banks of

TRENT FIN TYPE ELECTRIC OIL HEATERS

One pump and one bank of heaters for use, other for reserve. Unit supplies heavy fuel oil to 18 burners used for firing Firebrick Kilns and furnished by National Airoil Burner Co., Philadelphia, Pa.

ADVANTAGES: TRENT Fin Type Oil Heaters provide double the usual heating surface, minimum carbonization, and extra long, trouble-free service. Write for details.



235 LEVERINGTON AVE. PHILA. 31

When inquiring check CP 3230 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

PROCESSING EQUIPMENT

forming from "open-end" metal to true circle proportions and heat-treated in that shape with techniques developed by makers in producing bronze and steel rings.

All rings are ground on the OD and lapped on the sides to provide perfect seating and eliminate "sloppiness" in the piston grooves. This lapping also permits two rings to be employed in the same ring grooves where experience indicates this produces maximum efficiency. (Two $\frac{1}{8}$ " rings, for example, are used on the plunger of the die casting machines with $\frac{1}{4}$ " grooves.)

Some of the first stainless steel rings made were field tested in zinc die casting machines and showed no signs of fatigue or collapse after 8 months of this severe service. Die casters report that other types of rings often lose sealing ability after 24 to 48 hours of operation.

In addition to being free from distortion, friction and wear is reduced and compression efficiency is increased by near-constant expansion factor which permits closer tolerances between ring and cylinder wall.

Source: Non-breakable stainless steel piston rings are made by The Steel or Bronze Piston Ring Corp., Dept. CP, 546 South Meridian St., Indianapolis, Ind. . . . or for more information check CP 3231 on handy form, pages 2 and 3.

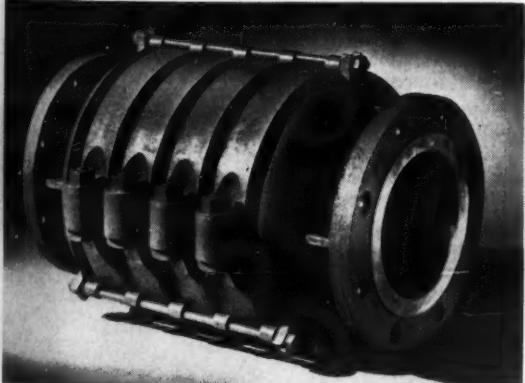
Packless expansion joint
is suitable for use in
trenches, tunnels . . .

units operate under temps from sub-zero to 1600°F, under pressures from vacuum to 300 psi

Uses: To absorb expansion and contraction due to temperature changes in steam, gas and liquid pipe lines.

Features: Expansion joint requires no packing. Compactness permits use in trenches, tunnels, other cramped quarters.

Description: Expansion joints, known as "Corruflex" joints, are available in sizes from 3" to 24". Models supplied with single or multiple corrugation, with or without



Packless expansion joint

out self-equalizing rings, in single or double units, and with flanged or welding ends.

Fabricated from copper, stainless steel, other alloys. Internal sleeve supplied if specified. Traverse of joints ranges from fraction of an inch to 15". Operates under pressures from vacuum to 300 psi, temperatures from sub-zero to 1600°F.

Source: Manufactured by American District Steam Co., Dept. CP, North Tonawanda, N. Y. . . . or for more information check CP 3232 on handy form, pages 2-3

The *Proof* of the **PRODUCT**
is in its **Performance**

The Very First
RIC-WIL
Prefabricated
Insulated Pipe Units
Ever Installed Are
Still Giving Trouble-
Free Service After
14 Years of
Constant Use

1949: All lines functioning
perfectly, trouble-free

MINNEAPOLIS "No trouble . . . in constant use"

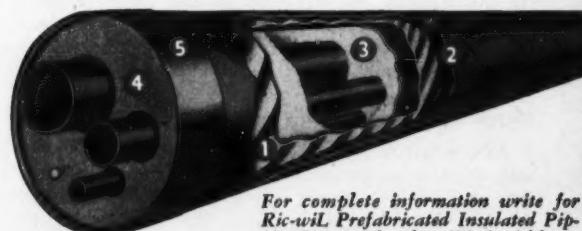
OMAHA "In good condition and is still serving in its original capacity"

DES MOINES "No trouble . . . in first class shape"

In 1935 the first Ric-wil Insulated Pipe Units using asphalt-coated Hel-cor conduit as the outer protective housing were installed for a large products pipe line company, at Minneapolis, Omaha and Des Moines. Each of these steam lines consisted of 3" pipe insulated and enclosed in 8" conduit of standard 21' length Ric-wil Units, with return lines laid outside the conduit.

In 1941 a check-up on these Ric-wil Units under actual service conditions was made. Parts of the runs were excavated and a careful examination made of the conduit, fittings, etc. The Ric-wil Units were in practically perfect condition, the same as they were when installed,

- 1 HOUSING of strong, shock-proof 16 gauge hot-dip galvanized Hel-cor conduit, spirally corrugated. Inside bonderized and coated with baked phenolic resin for additional protection.
- 2 HIGH TEMPERATURE asphalt coatings reinforced with tension wrapping of asphalt-saturated asbestos felt.
- 3 INSULATION of high thermal efficiency—any required type or thickness.
- 4 PRESEAL RING of steam-cured insulating cement protects units during shipping and installation.
- 5 HEAVY IRON COLLAR provides a firm foundation in making full-welded watertight field joints.

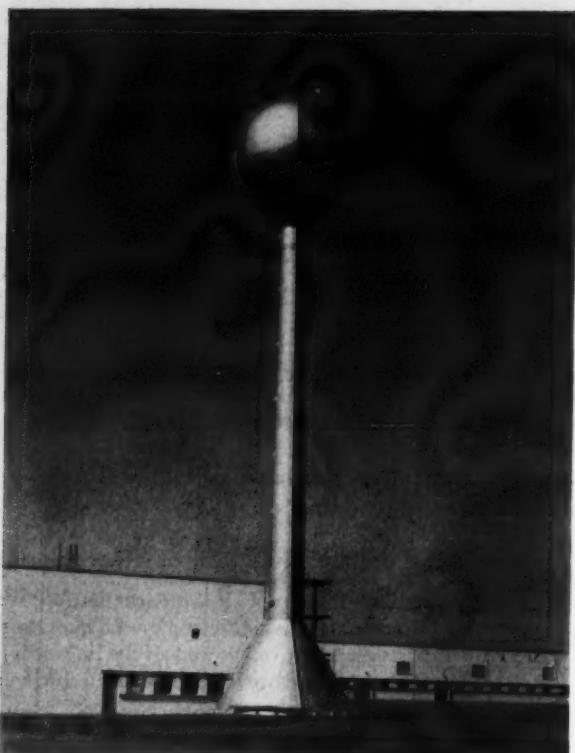


For complete information write for
Ric-wil Prefabricated Insulated Piping
Systems Catalog 480-4. Address:
The Ric-wil Company, Dept. S-15.

RIC-WIL
INSULATED PIPING SYSTEMS
THE RIC-WIL COMPANY • CLEVELAND, OHIO
REPRESENTATIVES IN PRINCIPAL CITIES

When inquiring check CP 3233 on handy form, pages 2-3

HORTON WATERSPHERE Provides Dependable Fire Protection



The Horton WATERSPHERE combines the utility of elevated water storage with the beauty of modern design. As an elevated tank, it offers the benefits of dependable gravity water pressure. At the Raritan, N. J., plant of the Ortho Pharmaceutical Corporation, for instance, it provides the primary source of water for the automatic sprinkler system. Fifty thousand gallons of water is available — day or night — to quench the flames the instant a fire starts.

As a structure, the WATERSPHERE is economical as well as graceful. Smooth surfaces — inside and out — make it easy to maintain. And its flowing lines blend in with the simplicity of modern plant architecture.

Horton WATERSPHERES are available in standard capacities from 25,000 to 100,000 gallons. For complete details write our nearest office.

CHICAGO BRIDGE & IRON COMPANY

Atlanta 3.....2107 Healey Blvd.
Boston 10.1007-201 Devonshire St.
Chicago 4.....2116 McCormick Blvd.
Cleveland 15.2222 Guildhall Blvd.
Detroit 26.....1555 Lafayette Blvd.
Seattle 1.....1307 Henry Blvd.
Tulsa 3.....1549 Hunt Blvd.
Plants at BIRMINGHAM, CHICAGO, SALT LAKE CITY, and GREENVILLE, PA.

When inquiring check CP 3234 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Plastic tube protects personnel from broken liquid-level glass gauges . . .

vents spray to side; withstands 950 psi at -58°F

Uses: To protect personnel from broken glass and dangerous spray due to accidental breakage of liquid-level glass gauges. Designed especially for column-type glass gauges on tanks, vessels or equipment containing light oils, corrosives or poisons.

Features: If glass breaks, plastic shield safely contains the glass fragments and directs spray away from operator.

Description: Plastic tube has 4 vent tubes cemented into side, as illustrated. Plastic is highly resistant to impact, and is shatter-proof and chip-proof. Shield has been tested to withstand hydrostatic pressure of 950 psi at -58°F. Shield retains resilience even at such low temperatures.

Caps of soft material close vent tubes, exclude dust and moisture. Closures displace themselves under slight pressure.

Oversize "O" rings seal either end of tube, also serve as shock absorbers for gauge tube.

Plastic shield has wall $1/8$ " thick, is 2" in diameter. Can be supplied in any length.

Source: Safety Shield tubes are composed of Tennessee Eastman Corporation's acetate butyrate Tenite, and are produced by The Frank E. Brown Co., Dept. CP, 1930 Wilshire Blvd., Los Angeles 5, Calif. . . . or for more information check CP 3235 on handy form, pages 2 and 3.

Lubricant delivered in any desired quantity to pumps, mixers, machines . . .

weight-loaded lubricator provides for pressures on lubricant up to 150 psi; capacity is $7\frac{1}{2}$ oz.

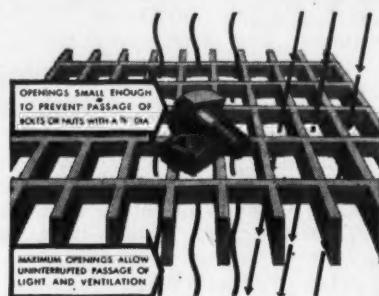
Uses: Application of lubricants to stuffing boxes of pumps and mixers, motors, engines, heavy machinery, line shafting bearings and motorized and lubricated valves.

Features: Because weights of different value may be used and adjusted infinitely throughout the length of the lubricator arm, pressures may be applied to lubricants up to 150 psi. By using additional weights even higher pressures may be obtained.

Because the position of the lubricator arm gives an exact indication of the amount of lubricant in the cup, positive warning is given when the lubricant supply runs low.

Description: Lubricator is designed to deliver lubricant at constant pressure in any desired quantity. Grease cup with capacity of $7\frac{1}{2}$ oz. has a conical bottom to facilitate lubricant passage.

TRI-LOK RECTANGULAR OPEN STEEL FLOORING



Tri-Lok strength is obtained by truss action through twisted cross-bar, curved in opposite directions at each bearing-bar. Standard openings in Tri-Lok Rectangular Steel Flooring are 1" x $3\frac{1}{8}$ "—other size openings can be supplied as required.

Diagonal, or Super-Safety U-type Flooring, and stair treads of all types, are available. Bulletin KG 1140 describes the construction features of Tri-Lok Open Steel Flooring.

DRAVO CORPORATION

National Distributor for the Tri-Lok Company
Dravo Building, Pittsburgh 22, Pennsylvania
Sales Representatives in Principal Cities

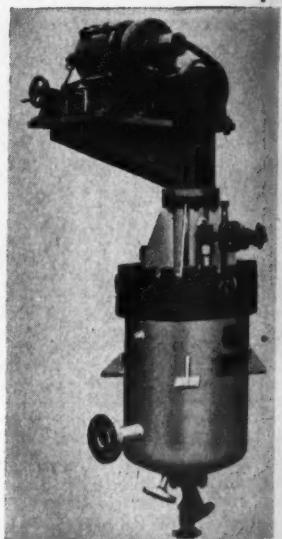


When inquiring check CP 3236 on handy form, pgs. 2-3

JACKETED AUTOCLAVE

Made Entirely of Inconel

A fifteen gallon high pressure jacketed Autoclave, built entirely of solid Inconel for an internal working pressure of 500 p.s.i. at 750°F. Equipped with jacket of carbon molybdenum steel, and turbine type high speed agitator to accelerate reactions. Other special features include a flush type Inconel plug valve, rupture disc safety valve and variable speed agitator drive. ASME Code U-68.



Our staff of technical experts are prepared to specifically design equipment for a laboratory or a complete plant.

ALLOY FABRICATORS

Division of CONTINENTAL COPPER AND STEEL INDUSTRIES, INC.
PITTSBURGH 22 - NEW JERSEY



When inquiring check CP 3237 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

PROCESSING EQUIPMENT

Replenishment of lubricant may be done without disassembling the lubricator. Lubricant is supplied through a standard grease fitting located at the bottom of the grease cup. The device has a bracket for universal mounting, with a shut-off valve available as optional equipment.

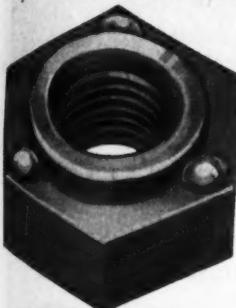
No tools are required to take the lubricator apart because of its unique yoke and pin construction and the simple grease cup cover. Compression cup is made of special molded leather backed by a steel plate. Lubricators weigh 20 lbs.

Source: Mixing Equipment Co., Dept. CP, 1024 Garrison Ave., Rochester 9, N. Y. . . . or for more information check CP 3238 on handy form, pages 2 and 3.

Nuts centered automatically ready for welding . . .

no need for jigs, no time wasted; used where space is restricted; secure loads against shifting

Uses: For easy, quick positioning or centering at the spot where it is to be welded to the metal. These nuts are used where application is difficult, due to restricted space or where metal sections are too thin to thread; the application process is reversed, the nuts being welded into final position and the bolts screwed into the nut. Weld nuts are also attached to various bulky or heavy products, so they can be bolted securely against shifting in transit.



Self-centering weld nut

Features: A circular "collar", with diameter slightly less than the bolt hole, is provided on the weld nut. Workman inserts the "collar" of the Gripco "Pilot" weld nut into the bolt hole (with one hand) and that automatically centers the nut accurately, ready for the welding operation. There is no need for jigs, no fumbling, no measuring, no time wasted.

Description: Nuts are furnished with common nut threads, or with the Gripco "double-triangle" thread locking feature, which locks the bolt to the nut.

Source: Gripco "Pilot Grip" nuts are made by the Grip Nut Co., Dept. CP, 310 (Q) South Michigan Ave., Chicago 4, Ill. . . . or for more information check CP 3239 on handy form, pages 2 and 3.

Elbows, tees, crosses, Y's, ferrules, other fittings for sanitary lines . . .

supplied in stainless steel or nickel alloy; will not corrode, are easily cleaned

Uses: To join suitable tubing in any desired assembly. Especially designed for use in lines carrying materials which must not be contaminated, or lines carrying corrosives.

Description: Fittings are furnished in stainless steel or in nickel alloy. Items available include elbows, tees, crosses, ferrules, reducers, clamps, etc. Supplied with threaded, beveled or welding ends.

Source: Produced by L. C. Thomsen & Sons, Dept. CP, 1303 43rd St., Kenosha, Wis. . . . or for more information check CP 3240 on handy form, pages 2 and 3.

A Commodity? No! It's a Service that is bought by the carload!



National ADHESIVES

Address: 270 Madison Ave., NEW YORK 16; 3641 So. Washtenaw Ave., CHICAGO 32; 735 Battery St., SAN FRANCISCO 11, and other principal cities. In CANADA: National Adhesives (Canada), Ltd., TORONTO and MONTREAL. In ENGLAND: National Adhesives, Ltd., SLOUGH.



ONLY THE TAP WATER HAS BEEN REMOVED • ONLY THE TAP WATER HAS TO BE REPLACED

When inquiring check CP 3241 on handy form, pgs. 2-3



AQUA-FLAKES give you full control of adhesive quality. You simply add cool tap water to quickly dissolved AQUA-FLAKES. And you have a complete liquid adhesive—with all of its original qualities—ready-for-use. As easy as that!

Large quantity users of old-fashioned cold water solubles and cook-up dextrines can stop worrying about mistakes in mixing formulas . . . wasted batches . . . changing characteristics during heating, cooling, storing . . . evaporation and pasting-up . . . mixing, aging and storage costs, etc. Quality-controlled AQUA-FLAKES film beautifully, tack fast, and production costs.

How are AQUA-FLAKES made? A new National process removes the water from a fine liquid dextrine adhesive without impairing its high quality. All you have to do is — put the water back.

Skeptical? A demonstration in your plant under actual working conditions will amaze you!



"NATIONAL" SIX-TRUCK TRAY DRYER

Provides Efficient, High-speed Production Under Critical Drying Conditions . . .

Installed in plant of Heyden Chemical Corporation, this unit is an example of the many sizes and capacities of truck tray dryers engineered by "National" to meet exacting requirements in the drying of chemicals.

Wide flexibility in operation and control permits future adjustment to changing needs. Patented features assure unequalled uniformity of air distribution and control. Generally furnished in aluminum panel and duct construction, but can be built with any metal required by specific conditions.

Write for Complete Information on This Modern Dryer

Chemical Dryers of All Types and Sizes.



Special Drying and Heating Equipment

THE NATIONAL DRYING MACHINERY CO.

2709 N. Hancock Street, Philadelphia 33, Pa.

When inquiring check CP 3242 on handy form, pgs. 2-3

NEW CONDENSER CUTS REFRIGERATION COSTS SAVES COOLING WATER

• The Niagara Aeropass Condenser cuts the cost of refrigeration by running compressors at lower head pressure, saving up to 35% of power and 95% of the cooling water.

The refrigerant gas passes thru two coils in an air stream. The first, "Duo-Pass" dry coil, removes the superheat by air cooling and condenses oil vapor. The second, condensing coil, drenched by recirculated water spray, condenses by evaporation, transferring to the air 1,000 BTU for every pound of water evaporated. This done at low temperature, no scale forms on condenser tubes to clog air passage.

Between the two coils is the "Oilout,"* which purges the system of crankcase oil and dirt, keeps it always at full capacity.

The "Balanced Wet Bulb"** control holds head pressure at the practical minimum. It automatically proportions the fresh air stream to the condensing load with the full benefit of power-saving on cool days, providing full capacity for peak loads.

Niagara Aeropass design results from over fifteen years' experience condensing by air. It is completely trustworthy for year 'round operation. Users say, "It saves half the difficulties and labor of running a refrigeration plant."

Units range from 10 to 100 tons capacity.
For full information ask for Bulletin 103.



*PATENTED

NIAGARA BLOWER COMPANY

Over 35 Years Service in Industrial Air Engineering

Dept. CP 405 Lexington Ave. New York 17, N. Y.
District Engineers in Principal Cities

When inquiring check CP 3243 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Slotted metal strip with toothed, wrap-around 'tongue' makes ideal all-climate label . . .

treated surface preserves writing, prevents oxidation or "white rust"; handy indoors or out

Uses: Metal "Twist-On" tags for outdoor and indoor labeling of wires, pipes, valves, machinery-parts and stored items.

Handy for labeling laboratory equipment, bottle necks and glass tubing. For both labeling and tying bags. For outdoor storage and warehousing.

Features: Locks securely in place by twisting the toothed metal wrap-around tongue. Writing surface is easily marked by metal or glass-marking pencil, and is designed to preserve writing, prevent oxidation or "white rust." Used by US Army and Navy in ordnance depots, warehouse and outdoor storage, and in tropics or salt air.

Description: Slotted tag and toothed wrap-around tongue are made in one piece of soft zinc with Cronak finish. When passed around object, through slot, and then twisted, tag holds fast in desired position for easy reading.

Writing surface is pressed with fine screen-like pattern of more than 122,000 shallow indentations per square inch. Part of writing is thus visible below surface of metal long after "surface" writing has vanished.

Source: Twist-On Label Co., Dept. CP, Toledo, O. . . or for more information check CP 3244 on handy form, pages 2 and 3.

Tinned inner surfaces lengthen life, enhance dependability of fire extinguishers . . .

tinning stops acid formation, prevents leaching of brass, eliminates electrolytic corrosion

Uses: To extinguish electrical fires, fires in grease, oils and gasoline, and other small fires.

Features: New tinning process lengthens life of Fire-Guns, as extinguishers are known. Substitution of tin for brass and copper surfaces removes acid-producing catalysts; prevents electrolytic corrosion by eliminating dissimilar metal surfaces.

Panic-proof handle releases with $\frac{1}{4}$ turn in either direction.

Description: Inspected and approved by Underwriters' and Factory Mutual Laboratories, Fire-Gun is now pro-

here's help for Your HIGH VACUUM problems

For such high vacuum processes as distilling, extracting, drying, impregnating, filling, packing, etc.—use the pump that produces the much needed, sustained high vacuum—in the low micron range—with high mechanical efficiency.

That's what you may expect and consistently get from Beach-Russ Rotary Piston Pumps:

- 1—Positive rotary motion at only 200 RPM without gears or springs yet—
- 2—High speed evacuation,
- 3—High volumetric efficiency and
- 4—Practically noiseless operation.

Thousands of these dependable pumps on wet or dry processes tell their success story. Available in sizes from 17 to 845 c.f.m. — in corrosion resistant metals, if required — for pressures within 10 microns blank flange.

Write for Catalog No. 84.

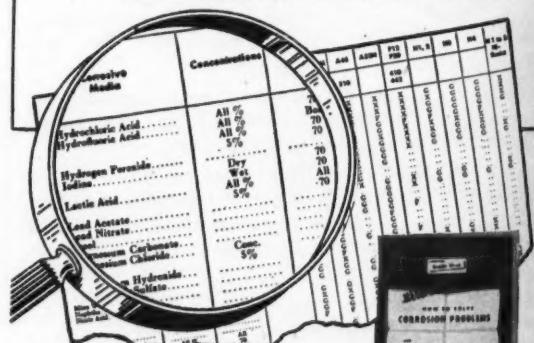


BEACH-RUSS ROTARY PISTON HIGH VACUUM PUMPS

BEACH-RUSS COMPANY
46 CHURCH ST., NEW YORK 7, N.Y.

When inquiring check CP 3245 on handy form, pgs. 2-3

GET THIS QUICK SELECTOR for CORROSION RESISTANT ALLOYS



Wherever your corrosion problems require stainless or other high alloys, you'll find an economical answer in one of the many grades of CHEMALLOY* corrosion resistant alloys.

Send for Bulletin T-171, including "Quick Selector" which lists the common corrosive media in alphabetical order, with specific Chemalloy grade recommended for each. Also shows AISI and ACI designation for standard Chemalloy grades.

Write Electro-Alloys Division, 1927 Taylor Street, Elyria, Ohio.

AMERICAN
Brake Shoe
COMPANY

ELECTRO-ALLOYS DIVISION

When inquiring check CP 3246 on handy form, pgs. 2-3

duced with completely tinned inner surfaces. Smooth tin surfaces reduce friction, make manual operation easier. Delivers entire contents in continuous stream of more than 25'. Vaporizes liquid as it is pumped; fire-smothering gas excludes oxygen from fires, snuffs them out immediately.

Liquid is free from moisture and impurities, is a non-conductor of electricity. Will not freeze at -50° F. Does not damage fabrics or paper.

Fire-Gun is made in 2 sizes: No. 0 (1 qt.) and No. 2 (1½ qt.) Extinguisher withstands jolting without danger. Non-corrosive valve facing prevents sticking of shut-off valve upon operation.

Source: Fire-Gun is made by American-LaFrance-Foamite Corporation, Dept. CP, Elmira, N. Y. . . . or for more information check CP 3247 on handy form, pages 2 and 3.

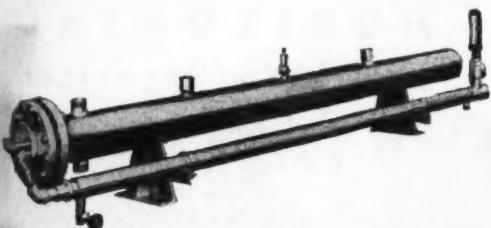
Simple unit provides correct, efficient blowdown for small boilers . . .

prevents irregular or insufficient blowdown, transfers blowdown heat to incoming feedwater

Users: To provide continuous, correct blowdown for small plants of under 500 boiler hp.

Features: Saves blowdown heat by transferring it from blowdown water to incoming feedwater. Permits accurate, automatic control similar to that obtainable with large plants.

Description: Compact unit is self-contained; controls, thermometer, heat exchanger and supports are pre-assembled. Simple automatic control is set to establish amount of continuous blowdown in proportion to quantity



Provides automatic, continuous blowdown for small boilers

of make-up water and its impurities. This control then regulates amount of blowdown for variations in amount of feedwater added. Eliminates irregular or insufficient blowdown.

Source: Produced by the Henzey Co., Dept. CP, Watertown, Wis. . . . or for more information check CP 3248 on handy form, pages 2 and 3.

Renewal fuse elements are non-interchangeable

Renewable fuses, featuring powder packed renewal elements that are non-interchangeable, are described in 4-page, 2-color brochure. Other items covered are trolley-tap and special fuses, ferrule and knife-blade 1-time fuses, fibre fuse pullers, fuse clamps and test clamps.

Also pictures wick-feed and gravity-feed oilers. Bul. 300-A, issued by Trico Fuse Mfg. Co., Dept. CP, Fifth at West Chambers, Milwaukee 12, Wis. When inquiring specify CP 3249 on handy form, pages 2 and 3.

New Texrope Sheave Gives Lowest Cost Instant Speed Control

- Covers most speed changing needs from 3 to 20 hp
- Very simple — one sheave does all
- Infinitely variable speed — 100% increase; 2 to 1 range.

THE NEW VARI-PITCH AUTOMATIC SHEAVE is the simplest, most economical method of instant speed control ever devised. You just move the motor forward to increase speed and move the motor back to decrease. The *Vari-Pitch*

Automatic Sheave changes pitch diameter and holds the belts at proper tension automatically.

Now, you can cut unit costs by operating machines at most efficient speed . . . improve quality by compensating for material variation . . . with a very small investment in new equipment. Today, ask your A-C Authorized Dealer or Sales Office to give you complete facts and figures on how the new *Vari-Pitch* Automatic Sheave can save money in your plant. Or write for bulletin 20B7223. A-2767

ALLIS-CHALMERS, 1151A SO. 70 ST.
MILWAUKEE, WIS.

Texrope and *Vari-Pitch* are Allis-Chalmers trademarks.

Sold . . . Applied . . . Serviced . . .

by Allis-Chalmers Authorized Dealers, Certified Service Shops and Sales Offices throughout the country.

MOTORS — $1/2$ to 25,000 hp and up. All types.

CONTROL — Manual, magnetic and combination starters; push button stations and components for complete control systems.

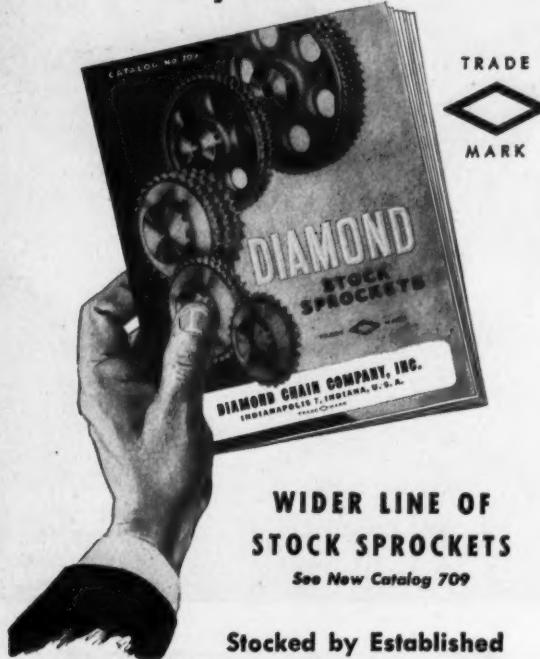
PUMPS — Integral motor and coupled types. Sizes and ratings to 2500 GPM.

ALLIS-CHALMERS

When inquiring check CP 3250 on handy form, pgs. 2-3

NOW AVAILABLE FROM STOCK

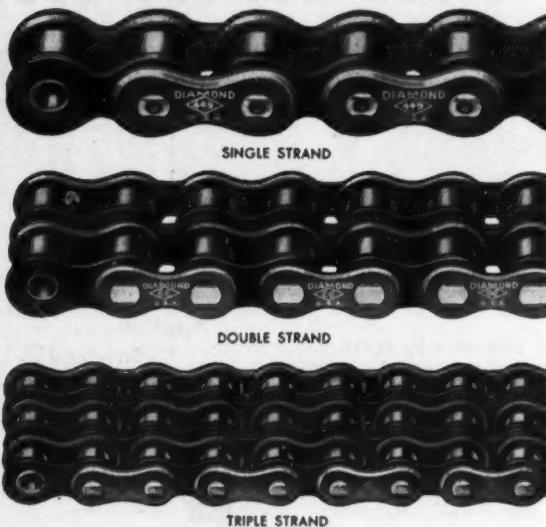
Diamond Roller Chain Sprockets



WIDER LINE OF STOCK SPROCKETS

See New Catalog 709

Stocked by Established
Distributors in All Industrial Centers



DIAMOND CHAIN COMPANY, Inc.
Dept. 411, 402 Kentucky Ave., Indianapolis 7, Ind.
Mail copy of new Stock Sprocket Catalog 709 to:

Name.....
Company.....
Address.....
City.....
Zone..... State.....

When inquiring check CP 3251 on handy form, pgs. 2-3
Page 120

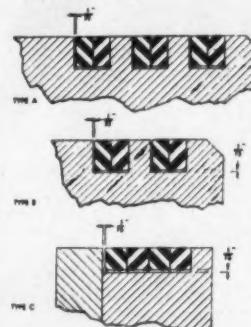
PROCESSING EQUIPMENT

No special tools are needed to install molded packings in reciprocating pumps . . .

resist water, oil; do not swell, shrink in service; used in place of hydraulic duck, other packing

Uses: Designed to meet the particular requirements of inside-packed reciprocating pump service.

Features: Molded to exact size; easy to install; no special tools required. Flexible and resilient, will not crack. Impervious to boiler feed water, salt water, fuel oil, lubricating oil, gasoline, brine, alcohol, and most acids and alkalis. Therefore they do not swell or shrink in service. Heat resistant up to 450°F. Self-lubricating, will not wear or score cylinder.



Standard types of inside-packed pistons and corresponding assemblies

Source: "Palmetto Pisto-Rings" are made by Greene, Tweed & Co., Dept. CP, North Wales, Pa. . . . or for more information check CP 3252 on handy form, pages 2 and 3.

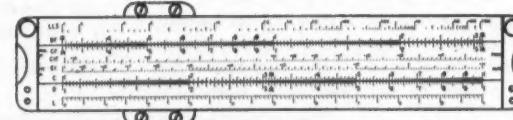
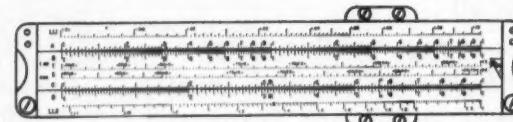
Sharp gradations, stable metal body lend accuracy to 6" log log slide rule . . .

C-D scales on both sides of rule, with folded scales and reverse scales, speed computations

Uses: To make all computations possible with full-size 10" log log slide rule.

Features: Magnesium alloy body is dimensionally stable, has optical tongues and grooves machined to 0.001" accuracy. Permanently aligned, free from distortion.

Description: Rule has 16 scales. Front of rule has LL1, A-B, T, S, C-D and LL2 scales. Back of scale has LL3,



Accurate 6" log log slide rule

DF-CF, CIF, CI, C-D and L scales. Needle-sharp gradations, on scales optically spaced for easy reading, result in easy settings and high accuracy.

Combination of C-D scales on both sides of rule speeds

THIS BOWSER METER

"EARN ITS KEEP"

Wherever Liquids are Processed

The 28 seconds it takes to read this may be worth THOUSANDS OF DOLLARS to your plant EVERY YEAR!

- 1 Bowser precision accuracy assures FULL CONTROL of every drop* of liquid.
- 2 Production is INCREASED with less labor, space and capital investment—no gage tanks needed.
- 3 Costly batch mixing is ELIMINATED and uniformity of product is GUARANTEED with Bowser Proportioning Systems.
- 4 Evaporation losses are PREVENTED—you use a closed system.
- 5 Inventory status is ALWAYS ACCURATE—automatically recorded input and withdrawals.

* Accurate to .01% if you need it that close.

You may be paying for the precision accuracy of Bowser meters BY NOT USING THEM IN YOUR PLANT! You can investigate by writing for bulletins. We're always at your service.

BOWSER, INC.
1325 Creighton Avenue
Fort Wayne 2, Indiana

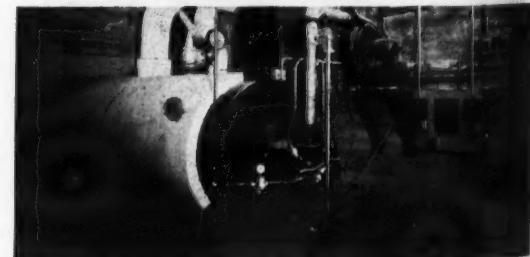
Bowser Fog Fire Fighting Units
for complete protection. Write
for catalog.

BOWSER
ESTABLISHED 1885

LIQUID CONTROL SPECIALISTS SINCE 1885

When inquiring check CP 3253 on handy form, pgs. 2-3

Presenting the **NEW** McKee HORIZONTAL Dowtherm Vaporizer



... offering the following outstanding advantages:

- 1 Low liquid level which facilitates the gravity return of condensate from heat using equipment.
- 2 All heating surfaces below liquid level, meaning greater economy.
- 3 Combustion within the vaporizer itself, so there is no heat loss through a furnace wall.
- 4 No flat surface with heat on the other side, on which a deposit can form and build up.

These are only a few of the advantages of this new unit and we invite your inquiries. Sizes from 300,000 BTU up through 2,000,000 BTU for temperatures up to 650° F. Write for information.

Eclipse Fuel Engineering Company
ROCKFORD ILLINOIS

McKee
Eclipse

When inquiring check CP 3254 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

PROCESSING EQUIPMENT

figuring and avoids going "off-scale". Illustrated instruction manual is provided with each rule.

Known as model 300, log log rule measures 3/32" x 1 3/32" x 6".

Source: Model 300 6" log log slide rule is produced by Pickett & Eckel, Inc., Dept. CP, 5 S. Wabash, Chicago 3, Ill. . . . or for more information check CP 3255 on handy form, pages 2 and 3.

Wound-rotor motors have high starting torque, low starting current . . .

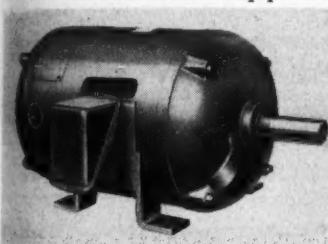
available in ratings to 100 hp, units are supplied as drip-proof, splash-proof, or totally-enclosed

Uses: for driving conveyors, crushers, fans, centrifugal compressors, etc.

Features: Smooth acceleration, high starting torque with low starting current; ability to start and stop or reverse frequently. Suitable for variable-speed applications.

Description: Built in NEMA frames 224-506 in ratings up to 100 hp, and in larger frames up to 2000 hp.

Frames and shields are drip-proof.



Motor's frames, end-shields are drip-proof

NEMA C face and D flange mountings. Both C face and D flange motors are available for horizontal or vertical operation, with or without feet.

Special windings are available for crane and hoist service.

Source: Form BW motors are built by Crocker-Wheeler Electric Mfg. Co., Dept. CP, Ampere, N. J. . . . or for more information check CP 3256 on handy form, pages 2 and 3.

Small panelboard has both main-disconnect and branch circuits . . .

thermal-magnetic circuit breaker units 'plug-in' on cylindrical bus bars

Uses: As 'on-off' wiring panel. Especially useful for pilot plants and other small installations.

Features: Incorporates thermal-magnetic circuit breaker units that plug into cylindrical bus bars. Circuit breakers are interchangeable with those of larger panel-board.

Description: Panelettes are available in 12, 16 and 20 circuit combinations for either 3 or 4 wire service. Boxes are only 12" wide, 4" deep, permitting surface or flush installation in shallow walls with studs on 16" centers.

Has main-disconnect circuit in same enclosure as branch circuits. Designated as Type MO Panelette.

Source: Produced by Square D Co., Dept. CP, 6060 Rivard St., Detroit 11, Mich. . . . or for more information check CP 3257 on handy form, pages 2 and 3.

SEPTEMBER, 1949

no more hand-me-downs

for
stainless
sheet
and strip



CRUCIBLE

hot and cold rolled

first name in special purpose steels

STAINLESS SHEET AND STRIP

STAINLESS • HIGH SPEED • TOOL • ALLOY • MACHINERY • SPECIAL PURPOSE • STEEL

When inquiring check CP 3258 on handy form, pgs. 2-3

END RESULT . . . LOWER COST

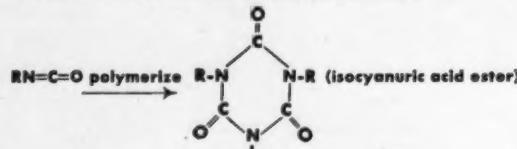
SODIUM CYANATE Na-O-C≡N

Available in commercial quantities

The least expensive source of the cyanate radical is provided by Sodium Cyanate. It is used in organic synthesis for making substituted ureas . . . medicinals for the treatment of amebic type infections, synthetic resins and plastics. Sodium Cyanate also has possibilities in the control of weeds and as an ingredient in metal hardening baths.

PROPERTIES

Molecular weight, 65.01 • Formula, Na-O-C≡N • Color, White • Form, Crystalline Powder • Purity, 95% • Solubility, Water-soluble, Alcohol, Ether-insoluble



Packed in fibre drums, 100 lbs. net, 114 pounds gross



EDWAL Quality fine chemicals

The EDWAL LABORATORIES, Inc. • 732 Federal St., Chicago 5, Ill.

When inquiring check CP 3259 on handy form, pgs. 2-3

1 . . . Powerful: cylinder operated (pneumatic or hydraulic)
 2 . . . Reliable: ASCO 3-way Pilot Control Solenoid Valve
 3 . . . Protected: rubber lined contact parts

This control valve unit consists of a Saunders Patent type natural or synthetic rubber lined diaphragm type main valve with a rugged and powerful operating cylinder suitable for air or hydraulic operation. It is controlled by an ASCO 3-way Solenoid Pilot Valve. All components are assembled into one compact unit as in the 1" flanged connected unit illustrated. Sizes range from 1/2" to 3". We shall be glad to send you further information on this control valve; also our Condensed Catalog No. 200-R which describes briefly our complete line of Solenoid Operated Valves.

When in need of Automatic Transfer Switches, Remote Control Switches, Contactors, Relays, and Specialized Electromagnetic Controls, come to us.

Automatic Switch Co.

379 Lakeside Avenue • Orange, New Jersey

When inquiring check CP 3260 on handy form, pgs. 2-3



PROCESSING EQUIPMENT

Remote speed control of fractional-hp DC motors . . .

controller maintains any speed from 80 to 1800 rpm

Uses: To provide remotely controlled power from fractional hp DC motors.

Features: Maintains any speed from 80 to 1800 rpm. Also can maintain constant torque over entire speed range.

Description: Specially designed DC ball-bearing motor receives both field and armature power from full-wave gaseous rectifier. Control box may be located some distance from motor.

Idle switch on control box can be used to turn motor on and off without disturbing speed setting. Time delay switch protects tubes during initial warm-up period.

Equipment is available at present in ratings of 1/4 and 1/2 hp.

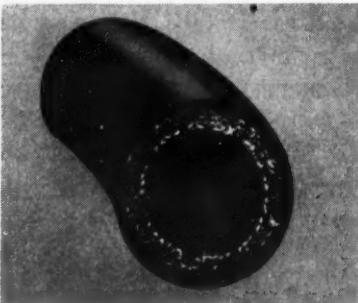
Source: Produced by The Brown-Brockmeyer Company, Dept. CP, Dayton, O. . . . or for more information check CP 3261 on handy form, pages 2 and 3.

Oil emulsions, DDT, 2,4-D sprayed by rubber hose . . .

working pressures to 800 psi are possible

Uses: Spray hose for use with all types of horticultural sprays such as oil emulsions, DDT, 2,4-D, and weed killers with highly aromatic carriers.

Also useful on hydraulic equipment and for carrying materials used in



800-psi spray hose

undercoating highway trucks. Handles working pressures as high as 800 psi.

Features: Handles many sprays previously destructive to rubber hose. Greater strength and less friction-loss, due to the extremely smooth tube, is reported.

Description: Made in long lengths,

STAINLESS FABRICATION by GRAVER



Stainless steel tank 12" x 32" fabricated by Graver for large chemical process.

■ Graver offers complete facilities for fabrication of stainless, stainless clad, nickel, nickel clad, Monel, Everdur, and aluminum. Vessels of any size—12 gauge and heavier—finishes up to and including No. 4. Full compliance with code requirements. Special equipment and crews for lining, erection and other field work. Write for quotations.

GRAVER

STAINLESS AND ALLOY STEELS DIVISION
GRAVER TANK & MFG. CO., INC.
 EAST CHICAGO, INDIANA
 NEW YORK PHILADELPHIA CHICAGO
 CATASAUQUA, PA. HOUSTON SAND SPRINGS, OKLA.

When inquiring check CP 3262 on handy form, pgs. 2-3

K-5464

Ratings THAT ASSURE PERFORMANCE

In the processing industries, a Taber Centrifugal pump for a definite requirement, will always prove superior to a stock or trade pump.

Features that indicate extreme flexibility and dependability are: a variety of impeller combinations for given-size casings; casings of various sizes for given-size yokes; over-size ball bearings; extra size shafts; extra deep stuffing boxes—all assembled and conservatively rated for the final replacement of your job.

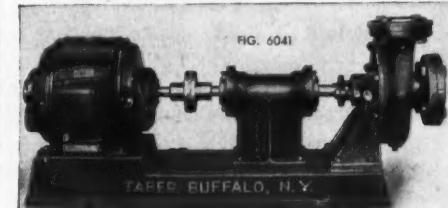


FIG. 6041
 TABER, BUFFALO, N.Y.

For complete information, please write on your letterhead for
TABER SPECIAL BULLETIN CL-339

TABER PUMP CO. • Est. 1859 • 268 ELM ST., BUFFALO 3, N.Y.

TABER Higher Practical Performance **PUMPS**

When inquiring check CP 3263 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

RUBBER PARTS FOR SUB-ZERO APPLICATIONS

Rubber parts to fit innumerable SUB-ZERO applications in the Refrigeration, Aviation, Automotive, Electrical, Farm Implement, Marine, and many other industries now are available fabricated from a new synthetic rubber which retains its rubber-like qualities at temperatures as low as -50° F. In addition to a remarkable ability to withstand SUB-ZERO TEMPERATURES for prolonged periods of time, parts made from the new compound have all the desirable characteristics of conventional rubbers.

Extruded channel cross-sections; punched gaskets, washers, and grommets; and molded shapes of all types can be fabricated from this new low-temperature synthetic rubber compound.

The Stalwart Rubber Company can supply precision rubber parts to meet your exacting specifications.

WRITE FOR CATALOG

THE STALWART RUBBER CO.
9221 Northfield Road, Bedford, Ohio
CUSTOM RUBBER FABRICATORS

Stainless steel tank 12" x 52" fabricated by Kraver for large chemical processing.

offers facilities of stainless steel, nickel, and copper, and up to alliance equipment and fixtures.

VISION INC.

60 S. OKLA.

pgs. 2-3

RE

CE

ugal

rove

de-

FIG. 19,467

THE STALWART RUBBER CO.

9221 Northfield Road, Bedford, Ohio

CUSTOM RUBBER FABRICATORS

When inquiring check CP 3264 on handy form, pgs. 2-3

PIPE MARKERS

anyone can use—everyone can read



QUIK-LABEL Pipe Markers conform to American Standards Association Pipe Identification System. QUIK-LABELS come on handy cards . . . stick without moistening. Names of materials printed in large black letters on correct ASA background colors. CAN BE READ UP TO 75 FEET. Markers for over 140 materials, **including all materials listed in ASA Standard A13**, available on Brady Stock Cards. Specials made to your order. QUIK-LABEL Pipe Markers are silicone plastic coated to resist dirt, grease, fumes, moisture . . . indoors or out. Replace slow and costly painting and hand stenciling. Exclusive Starter-Strip automatically releases part of label for fast peeling. QUIK-LABELS mark your pipes so that anyone who can read will know what's in them. QUIK-LABELS leave no room for doubt . . . or tragedy. Write for useful literature and **FREE SAMPLES** today.

W. H. BRADY COMPANY Established 1914

Manufacturers of Self-Sticking Tape Products
Chippewa Falls 10, Wis. • Distributors in 125 cities

When inquiring check CP 3265 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

of compounds of oil-resistant rubber. Braided construction with new-type high-tensile cotton yarn permits use of only two braids in all sizes except 3/4", which is made in three braids.

3/8 size has 13/16 outside diam; 7/16 has 7/8; 1/2 has 31/32, and 3/4 has 1-5/16. Cover is black, lead press molded finish.

Source: The B. F. Goodrich Company, Dept. CP, Akron, O. . . . or for more information check CP 3266 on handy form, pages 2 and 3.

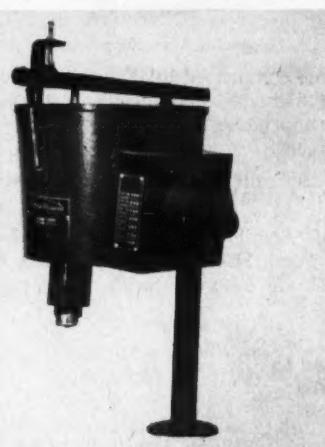
Heat, dispense wax, compounds . . .

dispenser prevents carbonization of materials

Uses: To heat and dispense waxes and compounds in transformer potting, container filling, etc.

Features: Heating element is applied directly to sides and bottom of inner pot to produce low heat concentration, eliminate hot spots. This prevents carbonization of compounds or waxes.

Description: Unit consists of pot, heating element, needle valve and



Wax, compound dispenser

spout, mounted on pipe support. Units available in 2, 4, 8, 11 quart and 5, 10, 15, and 25 gallon capacities.

Needle valve is locally heated to prevent freezing of compound being poured. Needle valve seats are interchangeable and supplied in 2 styles and 7 sizes, ranging from 1/8" to 1/2" orifices.

Thermostat provides temperature control from 150°F to 450°F, or from 250°F to 550°F.

Source: Product of Sta-Warm Electric Co., Dept. CP, Ravenna, O. . . . or for more information check CP 3267 on handy form, pages 2 and 3.

**IF DRYING or DEHYDRATING
IS INVOLVED IN YOUR PROCESSING**

Consult LANLY

FOR PROPOSALS
PERTINENT TO YOUR
PARTICULAR PROBLEMS

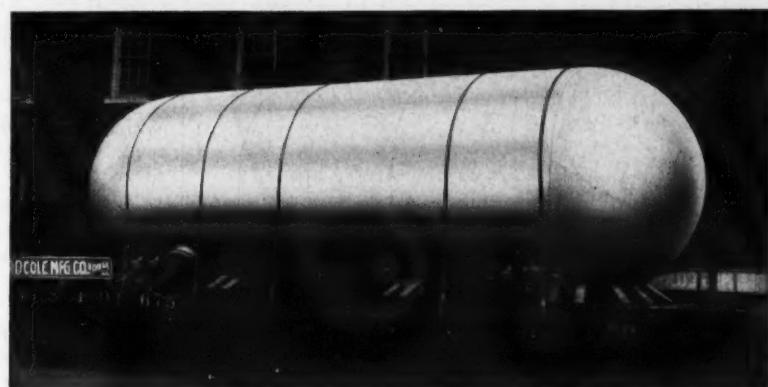
If your processing requires drying or dehydrating of Chemicals, Pharmaceuticals, Ceramics, Rubber, or any of various other products, our experience can be of value in solving your problems with correctly designed equipment. Batch, periodic and continuous types of ovens and dryers are available, heated by gas, oil, electricity or waste heat.

A letter or phone call will make our counsel available without obligation. Write for literature.

THE LANLY CO.
OVENS FOR INDUSTRY
HEATED BY: GAS, OIL, ELECTRICITY, STEAM
or WASTE HEAT

757 PROSPECT AVENUE • CLEVELAND, OHIO

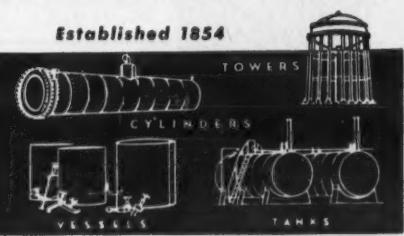
When inquiring check CP 3268 on handy form, pgs. 2-3



COLE
ALUMINUM
TANKS

We have available stock sizes from 9,500 to 22,800 gallons for pressure storage, and tanks of 99.8% pure aluminum for hydrogen peroxide from 5000 to 11,150 gallons. "Cole" can furnish tanks made of steel, aluminum and stainless steel — built in accordance with ASME Code — to meet all insurance requirements. We invite your inquiries for high pressure storage tanks, elevated tanks, acid or oil storage tanks, bins, boilers, stacks, etc.

R. D. COLE
MANUFACTURING CO.
NEWNAN, GA.



When inquiring check CP 3269 on handy form, pgs. 2-3

Dissolve or Disperse...

2 to 20 Times Faster

WITH THE

COWLES Ultra-Fast METHOD



Two to 20 times faster than conventional mixers, the Cowles Ultra-Fast Method handles the toughest dissolving and dispersing jobs in cycles that save up to 46½ hours running time. Yet this amazing method is not new . . . not revolutionary. It's just the simple application of classical physical laws, that have been given practical proof over the years in both the Cowles Hydrapulper, as well as in the Cowles Dissolver and Disperser.

Engineered to the Job

Standard dissolvers employing the Cowles Method are available in 4 different types, each adapted in motor speed, horsepower, design of impeller and chemical inertness of tank to the physical and chemical properties of the materials being treated. But special designs to fit special processes are regularly produced under reasonable delivery-date schedules. Let our engineers study your needs and make a recommendation. You may find your problem simpler than you think.

The Cowles Company

INCORPORATED
39 TRACKSIDE, CAYUGA, N. Y.

Associate: Alexander Fleck, Ltd., Ottawa, Ont.

When inquiring check CP 3270 on handy form, pgs. 2-3

*Cut painting
maintenance
costs*

with PRUFCOAT

Yes, this modern synthetic resin protective coating has a ten year record now of standing up where ordinary paints fail — in major chemical manufacturing plants throughout the country as well as those employing chemical processes. On walls, ceilings, floors, pipes, vats, ducts and machinery — in the presence of strong corrosives like caustic soda, sulphuric, nitric and phosphoric acids — Prufcoat saves money because it lasts longer, gives better protection.

GET *Proof* BEFORE YOU BUY . . .

Write for new *Prufcoat Proof Pack*. Contains in one easy-to-file folder reports from outside testing laboratories, actual case histories, and Prufcoat *Protecto-graph* Plan for analyzing your own painting maintenance costs. Write *Prufcoat Laboratories, Inc.*, 63 Main St., Cambridge 42, Mass.

**SAVES More because
it PROTECTS More**

8 Attractive Colors

Proof against Acids, Alkalies, Oil, Water

When inquiring check CP 3271 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Dispenser for melting, pouring filler compounds for batteries, transformers, etc . . .

"double-boiler" type oil bath provides uniform heat, prevents charring of compound

Uses: To melt and dispense transformer, battery and other filler compounds requiring mechanical agitation.

Features: Agitator is double-blade propeller type adjusted to 35 rpm; cannot start until material is properly heated.

Dispensing valve is heated by circulating heat-bath oil. Cannot freeze.

Description: Twenty-five gallon tank is heated by oil bath, in which are immersed two 4.5 KW and two 3.5 KW immersion heaters.

Bath can be thermostatically controlled from 550°F to 1000°F. Pressure line and air regulator assure uniformity of heating.

Dispensing valve can be operated by hand pressure or by foot pedal. May be fitted with dispensing outlets from 0.028" to 0.75"

Dispenser, known as model DA25ET, is insulated on all sides by 2" of rock wool compressed to 1" between the 2 steel shells. Bi-metal dial-type thermometer is recessed within tank for swift temperature check.

Weight is approximately 460 lbs. Larger models built to special order. Larger dispensing outlets are supplied when specified.

Source: Product of Aeroil Products Company, Inc., Dept. CP, Wesley St., South Hackensack, N. J. . . or for more information check CP 3272 on handy form, pages 2 & 3.

Use blank cartridges to drive steel studs into steel, concrete . . .

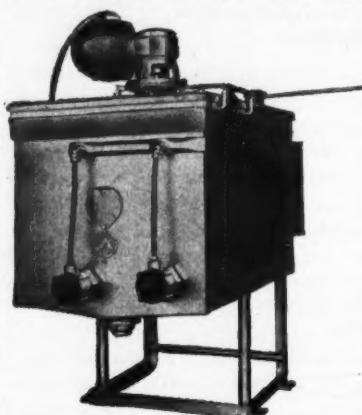
velocity-power driver weighing less than 5 lbs has spring-loaded safety arm; almost silent in operation

Uses: Driving steel studs instantaneously into steel, masonry or concrete.

Features: Achieves cost reductions up to 60% over conventional stud-placing methods. Weighs less than 5 lbs. Spring-loaded safety arm prevents accidental cartridge discharge. Safety arm must be rotated 180°. The firing pin cannot touch the cartridge until positively set by the safety arm. For further safety, only center-fire cartridges are used. The driver is flashless and almost silent in operation.

Description: The driver uses the energy of the blank cartridge to penetrate steel, to join steel to concrete, wood to concrete, or steel to steel without drilling, plugging, or old-fashioned studding method.

To operate, the cartridge assembly is inserted, barrel is screwed into the firing unit, and driver is placed over the work and fired.



Dispenses filler compounds

Stanzoil

NL-34

New Worker Comfort
In This Elastic Knit-Lined
Neoprene Glove



This Stanzoil Duplex NL-34 is designed expressly for, and is sold only to, industry. Elastic-knit lining stretches with every hand movement, gives new worker comfort and protection, more freedom than old-style flannel linings. Slip on and off easy as a cloth glove. Non-slip finish holds oily objects in a sure grip. Chocolate-brown DuPont Neoprene resists damage from oils, acids, caustics. Stanzoil NL-34's give you comfort and protection at lower cost per hour. Sizes small, medium and large. Larger Duplex Gloves, Catalog No. NL-42 and NL-52. Ask your supplier or write for informative catalog today.

Synthetic Rubber Division

The Pioneer Rubber Company
641 Tiffin Road Willard, Ohio, U. S. A.
Los Angeles, California



OVER 30 YEARS OF QUALITY GLOVE MAKING

When inquiring check CP 3273 on handy form, pgs. 2-3

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Dependable Accuracy**

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**FILTER
PAPERS**

* ANALYTICAL * INDUSTRIAL

Made from finest materials available under rigid specifications for accuracy and dependability . . . papers in light and heavy weights, with slow and fast filtering speeds . . . large stock maintained for immediate delivery . . . cut to any size and pattern . . . samples furnished upon request.

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Other "FILPACO" Products:
Filters, stainless steel storage and mixing tanks,
fillers, pumps, conveyors, fittings, filter paper,
filter cloth, asbestos pads and filter aids.



THE FILTER PAPER CO.

2432 South Michigan Avenue Chicago 16, Illinois

When inquiring check CP 3274 on handy form, pgs. 2-3

The cartridges which furnish power for the driver are .32 and .44 caliber. They are available in a series of loads ranging from light to heavy and the cartridge heads in each caliber are identified by different colors, according to load.

Cartridge, piston and stud for the driver are factory assembled as an integral unit to avoid mistakes in choosing the proper load for each application. Piston of the velocity-power driver has a long bearing area to prevent wobble of the stud and insure its correct entry into the work. An arresting block at the end of the driver's barrel detaches the piston from the stud as it enters the work, thus preventing ricochet.

Driver barrels are available in two sizes, interchangeable with the firing unit. A barrel guard slides over barrel when the driver is in firing position.

A 4-page bulletin No. TA-17 gives detailed description and lists types of studs that should be used for specific jobs.

Source: MSA Velocity-Power Driver is available from Mine Safety Appliances Co., Dept. CP, Braddock, Thomas and Meade Sts., Pittsburgh, Pa. . . . or for more information check CP 3275 on handy form, pages 2 and 3.

Transformer substations have high overload capacities . . .

self-contained units have no hazardous oils or toxic liquids; in ratings from 100 to 2000 KVA

User: To provide power for plant use and processes from main line.

Features: Absence of hazardous oil, toxic liquids provides extra margin of safety. Units have overload capacities previously unobtainable.

Description: Unit substations include primary protection, dry-type transformer, secondary breakers, metering equipment, etc. Supplied with wide variety of primary and secondary protective equipment to suit varying requirements.

Transformer section is constructed throughout with Class



1000 KVA transformer substation, with 4160-volt delta primary, 120-208 volt, 4-wire Y secondary

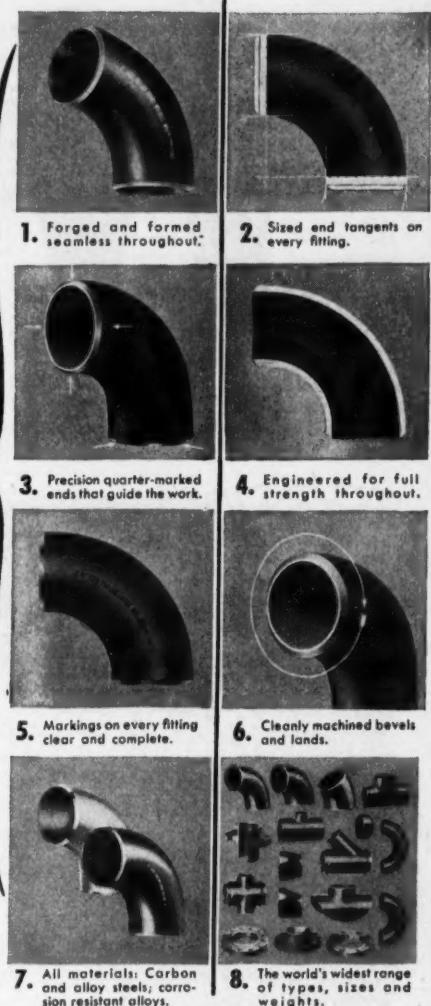
B or C heatproof insulation, such as fibre-glass, mica, porcelain and new Johns-Manville Quinterra.

Available in sizes ranging from 100 to 2000 KVA, both single and 3-phase, and in voltages to 15,000 volts.

Source: Produced by Marcus Transformer Co., Inc., Dept. CP, 32-34 Montgomery St., Hillside 5, N. J. . . . or for more information check CP 3276 on handy form, pages 2 and 3.



**A flange broken 50 years ago...
...led to one thing,
to another, to another...**



**TAYLOR
FORGE**

TAYLOR FORGE & PIPE WORKS General Offices & Works: Chicago 90, Ill. (P.O. Box 485). Eastern Plant: Carnegie, Pa. Western Plant: Fontana, Calif. • District Offices—New York: 50 Church Street • Philadelphia: Broad Street Station Bldg. • Pittsburgh: First National Bank Bldg. • Chicago District Sales: 208 S. LaSalle Street • Houston: City National Bank Bldg. • Los Angeles: Subway Terminal Bldg.

Please send a copy of your new catalog 484 covering welding fittings and forged steel flanges.

Name _____

Position _____

Company _____

Street address _____

City _____ Zone _____ State _____

515-0949 Mail to Taylor Forge & Pipe Works, P.O. Box 485, Chicago 90, Ill.

Hard-to-handle chemicals are Duck Soup for



SURETY SURESEAL GLOVES

Sureseal Synthetic Rubber takes acids, alkalis, aromatics, oils, rubber solvents, and most industrial chemicals in stride — the only standard glove material practical for use in some of the very active organic solvents. Miles ahead of other synthetics and natural rubber in chemical resistance, in snag and abrasion resistance. Best hand protection you can buy, lower on-the-job cost.

Want to check further? Laboratory test data and additional information on request.



DEPT. C

SURETY'S patented TURN-CUFF for an extra margin of safety.

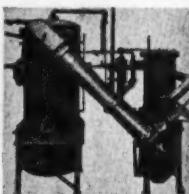
CUFF UP — No dribbles on arms, no trickles inside gloves.

CUFF DOWN — Two-inch longer protective gauntlet.



When inquiring check CP 3278 on handy form, pgs. 2-3

NOW is the TIME to consider next summer's Cooling Requirements



CHILL-VACTOR equipment answers the need of chemical and process industries for:

Maintaining proper temperatures in certain solutions.
Chilled water for air conditioning.
Chilling various reaction vessels.
Special cooling requirements.

The Croll-Reynolds CHILL-VACTOR is one of the most dependable and efficient units available for many cooling requirements in the range above 32° F. It has no moving parts other than a standard chilled water circulating pump. Water is the only refrigerant.

Maintenance and repair costs are practically nil. Operating costs are usually less than for other types of refrigerating equipment where ample condenser water is available.

Inquiries will receive the careful attention of engineers with many years specialized experience in the field. An engineering survey can be arranged without cost or obligation.

CROLL-REYNOLDS CO.

17 JOHN STREET, NEW YORK 7, N. Y.

CHILL VACTORS STEAM JET EVACTORS CONDENSING EQUIPMENT

When inquiring check CP 3279 on handy form, pgs. 2-3

Page 126

PROCESSING EQUIPMENT

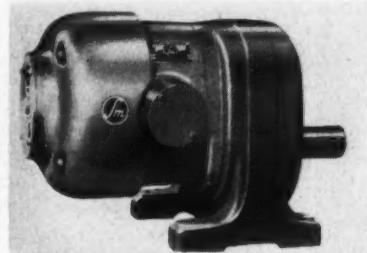
Geared motors are totally-enclosed . . .

units have permanently-lubricated heavy duty ball bearings

Uses: As geared motor for use in atmospheres containing non-explosive dusts, vapors, and injurious foreign materials.

Features: Can be mounted in any position.

Description: Geared motors are totally-enclosed, equipped with labyrinth seals, heavy duty ball bearings,



Totally-enclosed motor

lubricated for life.

Source: Product of Sterling Electric Motors, Inc., Dept. CP, 5401 Anaheim-Telegraf Rd., Los Angeles 22, Calif. . . . or for more information check CP 3280 on handy form, pages 2 and 3.

Less regrinding when roll-turning tool has 4 blades . . .

Implement is useful in longitudinal-feed lathes

Uses: Mechanically-held roll-turning tool for use in longitudinal-feed lathes.

Features: Four cutting edges are used successively before resharpening. Can be reground many times (long sides



Roll-turning tool

only) and advanced each time to cutting position.

Description: Square nose of tool is set by user at angle in tool post to allow for desired depth of cut. Solid Kennametal blade is held in position on an accurate surface of the supporting shank by a clamp and an adjustable back-up plate, both of heat-treated steel.

Available in two sizes: 2 1/2" wide x

I-R Chemical Pumps are Armored against Corrosion

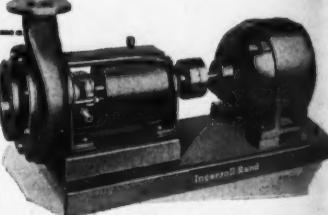
with IRCAMET

Ingersoll-Rand chemical pumps are built to stand up under the continuous handling of corrosive and abrasive liquids. All parts of the pump that come in contact with the liquid are made of Ircamet — a high nickel-chromium-molybdenum alloy steel developed exclusively for chemical pump service. Laboratory tests and years of field experience have proved Ircamet has exceptional ability to resist the corrosive action of a wide variety of acids and alkalis. Other materials are available for special operating conditions.

Your nearest I-R engineer will be glad to explain the features of these pumps which result in ease of maintenance and overall operating economy. Ask him for your copy of Catalog 7095.

And only I-R chemical pumps offer you the advantages of the Leakleeter stuffing-box gland and the Cameron Shaft-Seal . . . the modern solution to pump leakage.

Capacities to 4000 gpm
Heads to 200 feet



Ingersoll-Rand

419-10
Cameron Pump Division

11 Broadway New York 4, New York

When inquiring check CP 3281 on handy form, pgs. 2-3

Control Uniformity from Bulk to Package . . .

No matter how you package uniformity of the individual unit must be controlled for profitable volume production. There is a great deal of difference between uniformity in theory and uniformity in practice. When packaging is done by hand sound checkweighing with EXACT WEIGHT Scales should be employed . . . uniformity controlled. In semi-automatic packaging cartons should be checked constantly against the personal element and efficient machine operation. Even in fully automatic packaging checkweighing against machinery vibration is sound production procedure. Frequent checking here gives warning to adjust for packaging leak in heavy volume operation. An EXACT WEIGHT Scale fitted to the job is industry's best insurance for controlling uniformity. Write for full details for your business.



INDUSTRIAL PRECISION Exact Weight Scales

THE EXACT WEIGHT SCALE COMPANY

31 W. Fifth Ave., Columbus 12, Ohio
Dept. E, 2920 Bloor St., W., Toronto 18, Canada

When inquiring check CP 3282 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

**SAVE time, space
and costs with AT&M
centrifugals**



Does separation, extraction, dehydration, clarification, coating, filtration, draining, thickening or sedimentation enter into your processing? If so, you'll find that an AT&M Centrifugal, large or small, will do it faster and better at lower unit costs. Made in all machinable metals, AT&M Centrifugals are available with fume-proof hoods, free-wheeling drives, removable baskets, spray pipes and many other AT&M special features designed to solve specific problems. Why not send us a sample of your material for confidential analysis and recommendation . . . without cost or obligation?

American Tool and Machine Company, 1425 Hyde Park Ave., Boston 36, Mass.

SAVE TIME, SPACE AND COSTS WITH
**A.T. and M.
CENTRIFUGING**

When inquiring check CP 3283 on handy form, pgs. 2-3

**accuracy
at High Operating Speed with
Despatch LABORATORY OVENS**



Despatch Laboratory and Production Ovens are ideally suited to all types of research . . . testing . . . production control. They are designed to provide the closest heat uniformity through every inch of the work chamber . . . consistently accurate temperature control at all heats . . . ample speed to process capacity loads at any desired operating temperature.

Chemical and analytical, drying and baking, preheating and aging, sterilizing and curing, food dehydrating — these are just a few of the uses. Available in six models, with inside dimensions ranging from 13" x 13" x 13" to 37" x 25" x 50".

MANUFACTURERS OF OVENS FOR ALL PURPOSES

DESPATCH
LABORATORY OVEN
IN 1902

ASK FOR BULLETIN
No. 106

343 DESPATCH BLDG., MINNEAPOLIS 14, MINN.

When inquiring check CP 3284 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

1-7/8" high x 15" long; or 2-1/2" square x 15" long.

Source: Style LRT roll-turning tool is a product of Kennametal Inc., Dept. CP, Latrobe, Pa. . . . or for more information check CP 3285 on handy form, pages 2 and 3.

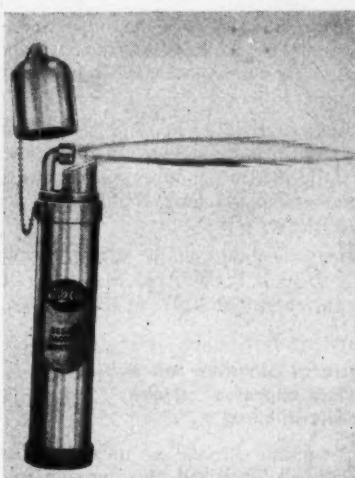
**Miniature blow torch
weighs 10 ozs., has
6" flame . . .**

burns at 1800°F for 1½ hrs; measures only 7 1/4"

Uses: For blowing soft glass, for bending Pyrex, to fuse silver and gold solders, etc.

Features: No pumping, priming. Gives 6", 1800° flame for 1½ hrs.

Description: Blow torch weighs



Miniature blow torch

10 ozs., is 7 1/4" tall. Burns denatured alcohol. Of all-brass construction with triple plate chrome finish.

Source: Product of Emil Greiner Co., Dept. CP, 20-26 No. Moore St., New York, N. Y. . . . or for more information check CP 3286 on handy form, pages 2 and 3.

**Compares 4 types of
gate valves**

Four gate valves are compared, point by point, in a 4-page bulletin.

Disc construction, packing methods, stem stock, bolting methods, yoke nut construction, grease fittings, and other points are covered.

"Comparison Chart of 2-inch Stainless Steel Gate Valves", issued by The Cooper Alloy Foundry Co., Dept. CP, Hillside, N. J. When inquiring specify CP 3287 on handy form, pages 2 and 3.

**Accurate Flow Control
Quick Shut-Off**



ROCKWELL

**BUTTERFLY VALVES
for Air . Gas . Liquids . Solids**

Whether it's by manual control or remote, automatic control, these valves provide efficient, positive, uniform flow regulation at any desired, visible degree of valve opening. When entirely open, valve area is practically as free

Write for
Bulletins

W. S. ROCKWELL COMPANY
220 ELIOT STREET • FAIRFIELD, CONN.

as the pipe line itself, without bends or seats to cause undue pressure drop or turbulence.

Construction — of any desired metal. Pipe sizes—to 72". Operating pressures—standard, to 25 p.s.i., special, to 125 p.s.i.

When inquiring check CP 3288 on handy form, pgs. 2-3



HARWICK STANDARD CHEMICAL CO.

AKRON 8, OHIO
BRANCHES: BOSTON, TRENTON, CHICAGO, LOS ANGELES

When inquiring check CP 3289 on handy form, pgs. 2-3

WATER HAMMER can cost a Fortune



Used and specified on hundreds of new buildings—and installed on thousands of old buildings to prevent costly "Water Hammer"—the Williams-Hager Flanged Silent Check Valve will solve your problem, too! Write for new technical bulletin.

THE WILLIAMS GAUGE CO

Pump Valves . . . Water Gauges . . . Gauge
Cans . . . Steam Traps . . . Pump Governors
. . . Feed Water Regulators . . . Water Columns
1515 PENNSYLVANIA AVE. • PITTSBURGH (12), PA.

When inquiring check CP 3293
on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Source: Produced by Fisher Scientific Co. and Eimer & Amend, Dept. CP, 717 Forbes St., Pittsburgh 19, Pa. . . . or for more information check CP 3294 on handy form, pages 2 and 3.

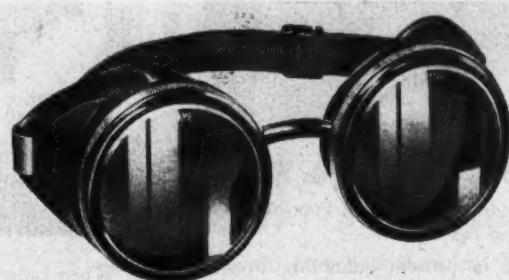
Welders' goggle offers extra protection . . .

eyecups have larger, rounded, face-protecting edges, withstand severe impacts

Uses: To protect welders' eyes from glare of arc or flame, and from flying particles.

Features: Eyecups are molded of extremely strong phenolic compound that is non-flammable, moisture and heat resistant.

Description: Wide-angle vision is provided by new design. Eyecups have indirectly ventilated louver side shields, non-reflecting surfaces. Larger, rounded, face-contacting edges withstand severe impact, give snug fit.



Welders' goggle

Chain bridge is enclosed in plastic, joins large lens rings. Goggles are available with round Noviweld lenses in shades 3, 4, 5, 6, or 8, or with round Noviweld Didymium lenses in shades 3, 4, 5, or 6. Lenses are 50 mm in diam.

Source: Product of American Optical Company, Dept. CP, Southbridge, Mass. . . . or for more information check CP 3295 on handy form, pages 2 and 3.

Assemble 14 basic aluminum pipe structures with only 3 fittings . . .

cut installation time 80% in erecting partitions, guard rails, fence frames, truck racks

Uses: For assembling pipe structures, providing 14 different arrangements. In combination with aluminum pipe, scores of new and unusual pipe structures, as well as all conventional types of structures, can be produced.

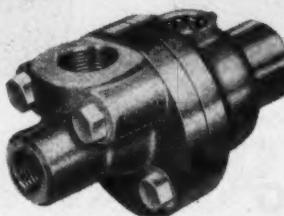
Features: Cuts installation time up to 80%. All pipe threading and welding are eliminated. Slip-on feature permits free passage of the pipe which is firmly engaged by two hollow point set screws recessed into each reinforcing rib. The resulting assembled pipe structure possesses exceptional strength.

Description: Just three basic fittings plus an offset cross offer a complete departure from straight line fittings. Fittings as well as pipe used in these assemblies are of lightweight aluminum. Rust cannot attack it.

Source: "Nu-Rail" Aluminum fittings and "Lifetime" aluminum pipe are products of Reynolds Metals Company, Dept. CP, 2500 South Third St., Louisville, Ky. . . . or for more information check CP 3296 on handy form, pages 2 and 3.

DESIGNED TO SAVE You MONEY!

After several years of research and development, CHIKSAN is now ready with two new types of High Temperature Joints which represent the latest in design and performance. They are built specifically to answer the many problems encountered in the handling of steam and other high temperature fluids on rotating equipment and in flexible lines.



Maximum Working Pressure—150 lbs. steam.
1", 1½", and 2" sizes now available. Other sizes under development.
Cadmium Plated Chrome Seal Face.
Rotating speeds, 150 to 300 R.P.M. Built to serve. Built to last.



Made in 8 different styles for turning in 1, 2 and 3 planes.
1", 1½", and 2" sizes now available. Other sizes under development.
Positive Metallic Seal.
Maximum working pressure 300 psi.
Maximum temperature, 600° F.

NOW! CHIKSAN HIGH TEMPERATURE ROTATING JOINTS

Designed and built for use on rotating drums, platens, tumblers, etc. This new Rotating Joint will handle steam, hot oil, water, brine, etc. Rotation may be constant or intermittent. The service may be hot or cold. A positive seal prevents leakage at all times. Packing chamber is hard-chrome plated. All parts are resistant to rust and corrosion.

NOW! CHIKSAN HIGH TEMPERATURE SWIVEL JOINTS (Metallic Seal)

These new Joints set new performance standards wherever steam or other hot fluids are handled through flexible lines. The Metallic Seal provides positive protection against leaks. Full 360° turning on stainless steel ball bearings which help to absorb radial and thrust loads. Unlimited flexibility is possible simply by arranging the swivels in proper sequence.

COMPLETE ENGINEERING DATA

Write for illustrated bulletins and see for yourself how these new CHIKSAN Joints can help you cut leakage losses, operating and maintenance costs, and shut-down time now required for frequent repairs and replacements.

REPRESENTATIVES IN PRINCIPAL CITIES



CHIKSAN COMPANY

AND SUBSIDIARY COMPANIES

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BALL-BEARING SWIVEL JOINTS FOR ALL PURPOSES

When inquiring check CP 3297 on handy form, pgs. 2-3

You Get
IDENTICAL
PERFORMANCE
Every Time!

HUPPERT
Model 2 DeLuxe
FURNACE

You maintain any temperature on-the-line automatically from 325° to 1600° F. with the Huppert Model 2 DeLuxe—on laboratory testing, tempering, annealing, etc. Also ideal for precision small unit production. Two pilot lights indicate furnace operation and throttling action. Multi-insulation; all-steel construction; Fahrenheit or Centigrade pyrometer. Special alloy elements, tight closing counter-weighted door. I.D. 4 1/4" x 3 1/2" x 4 1/4"; O.D. 12" x 13" x 12". Current consumption 800 watts.



Complete with Pyrometer & Automatic Control—\$75.00

All Stainless Steel Construction—\$90.00

Write TODAY for literature

K. H. HUPPERT CO.

6822 Cottage Grove Avenue
Chicago 37, Illinois

When inquiring check CP 3298 on handy form, pgs. 2-3



MANY
INDUSTRIAL
ROLL
PROBLEMS
are solved
by using

SHAF-TITE* ROLLS



Many patented constructions provide strongest possible shaft setting. Your choice of many different types and materials—wood, rubber, iron, brass, stainless steel plastic, etc. Whatever your roll problem, put it up to Rodney Hunt.

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Most complete publication
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RODNEY HUNT MACHINE CO.
273 Maple Street, Orange, Mass.

Reg. U.S. Pat. Off.

When inquiring check CP 3299 on handy form, pgs. 2-3

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PROCESSING EQUIPMENT

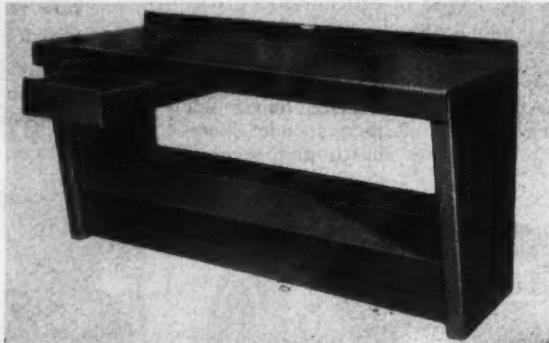
**Sturdy steel work bench
has 12-gauge top . . .**

units are easily cleaned; will not split, crack, gouge, splinter, or soak up oil

Uses: As sturdy bench for packing and shipping operations, to hold small punch presses, bench grinders, drill presses, lathes, etc.

Features: Easy to clean; will not crack, gouge, splinter. Do not soak up oil, as do wooden work benches.

Description: Work bench has 12-gauge steel top. Unit is 6' long, 34" high, 28" deep. Supplied complete with



Steel work bench

back rail, pilfer-proof drawer, electrical knockouts, bottom shelf with rear riser and base.

Legs are sloped back to prevent stumbling over them. Bench may be bolted to floor through concealed holes.

Standard finish is olive green enamel. Any other colors may be specified.

Source: Product of Equipto Div., Aurora Equipment Co., Dept. CP, Aurora, Ill. . . or for more information check CP 3300 on handy form, pages 2 and 3.

**Three-piece steel fittings for
leak-proof joints in tubing
from 1/8" to 2" . . .**

supplied in 477 shapes and sizes, units include male and female connectors, unions, tees, etc.

Uses: To join tubing with leak-proof joints.

Features: 477 shapes and sizes are available. Fittings meet Joint Industry Conference Hydraulic Standards, and have undergone performance testing required in Army-Navy Specification AN-F-47.

Description: Fittings are of 3 pieces: sleeve, union nut and threaded coupling. Sleeve fits over tubing, then tubing is rolled to 37° flare. Threaded coupling fits into flared edge, sleeve is drawn up behind flare, and union nut tightens assembly.

Sleeve acts as lock-washer, damps vibration and prevents wiping of flare during make-up. Dryseal pipe threads are supplied on all fittings.

All fittings are made of steel or stainless steel. Shapes stocked include male and female connectors, elbows, run tees, outlet tees, unions, union tees and bulkhead unions. Sizes range from No. 2 (1/8" tube O.D., 1/8" pipe thread) to No. 32 (2" tube O.D. and pipe thread).

Source: Product of The Parker Appliance Co., Dept. CP, 17325 Euclid Ave., Cleveland 12, O. . . or for more information check CP 3301 on handy form, pages 2 and 3.



**Northwestern SAFETY
WATER HEATER**

A complete, compact unit containing regulator and safety features built into or attached to heater head. No other accessories needed. Built in seventeen sizes.

Installation requires attachment of only three pipes—high pressure steam supply, cold water inlet and hot water outlet. Head, coil and equipment removable as a unit.

Normally delivers water at approximately 120° F. Satisfactory for wash room use yet not hot enough to scald. Long life through minimum corrosion.

• • FEATURES • •

Completely insulated and protected by waterproof covering. Glass lined A.S.M.E. tanks.

Pressure gauges provided to visually check operation.

Condensate may be returned to cold water to facilitate economical heater operation.

THE COE MANUFACTURING CO.
THE COE MANUFACTURING CO.

When inquiring check CP 3302 on handy form, pgs. 2-3

Nordstrom
LUBRICATED VALVES

For any
pressure
or
temperature

Corrosion-resistant
Positive action plug
Seat never exposed
Pressurized lubrication



Lubricant under pressure seals each port against leakage. Will not stick because plug can be hydraulically jacked. Always easy to turn. Quarter-turn completely opens or closes. Highest resistance to corrosion and erosion. Most successful in chemical service. Made in steel, semi-steel, stainless steel, bronze and special alloys.

Keep upkeep down



NORDSRM VALVE DIVISION
Rockwell Manufacturing Company
400 N. Lexington Avenue, Pittsburgh 8, Pa.
Offices in all principal cities

When inquiring check CP 3303 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

PROCESSING EQUIPMENT

Laboratory weights
are inexpensive,
accurate . . .

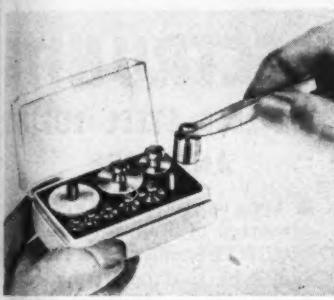
range from 10 mg. to 50 grams;
meet Class 'C' tolerances

Uses: As accurate, economical laboratory balance weights.

Features: Each weight individually adjusted to within Class 'C' tolerances as specified by National Bureau of Standards.

Description: Weights range from 10 mg. to 50 grams. Weights from 1 to 50 grams are polished, lacquered brass. Fractional weights are satin-finished aluminum. Forceps are polished stainless steel.

Weights are placed in Bakelite insert,



Laboratory balance weights

will not slip out of place when box is inverted. Box is transparent plastic.

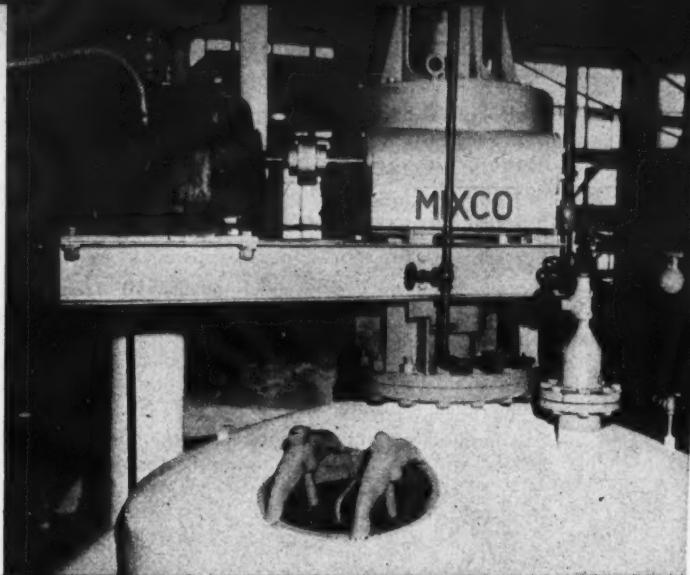
Source: Produced by Ohaus Scale Newark 8, N. J. . . or for more information check CP 3304 on handy form, pages 2 and 3.

Describes extruded aluminum shapes

Range of lengths, shapes, tolerances, weights and tempers in which extruded aluminum shapes are available is set forth in 4-page, 2-color bulletin. Discusses advantages of extrusions, tells how rod, bar and shapes are packed, points out how to specify extruded shapes. Several tables give alloys and their tempers, chemical composition and specified mechanical properties.

"Extruded Shapes", issued by Reynolds Metals Company, Dept. CP, 2500 So. Third St., Louisville 1, Ky. When inquiring specify CP 3305 on handy form, pages 2 and 3.

For more information on product at right, specify CP 3306
see information request blank between pages 2-3.



FOR THAT **TOUGH**
MIXING JOB...



LIGHTNIN & MIXCO MIXERS

THE ACCEPTED STANDARD IN PROCESS WORK

Lightnin and Mixco Top Entering Mixers are specifically designed to be permanently mounted on open or closed, vacuum or pressure tanks.

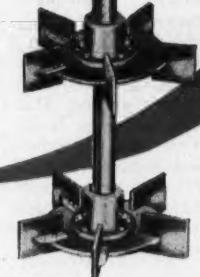
They are equipped with standardized drives especially designed for mixing service with a minimum of maintenance cost. Every unit is delivered as a complete package, ready to install and operate. Built into them is Mixing Equipment Company's experience covering over a quarter of a century.

A wide range of sizes—1 to 50 H.P. with propeller type and turbine type impellers as well as paddles are available. Furnished in various materials to meet your specific operating conditions.



**LIGHTNIN & MIXCO MIXERS
ARE NOW USED FOR . . .**

- Mixing**
- Dissolving**
- Suspending Solids**
- Emulsifying**
- Heat Exchange Improvement**
- Washing**
- Reacting and Precipitating**
- Extracting**
- Liquid Gas Contacting**
- Batch or Continuous Treating**



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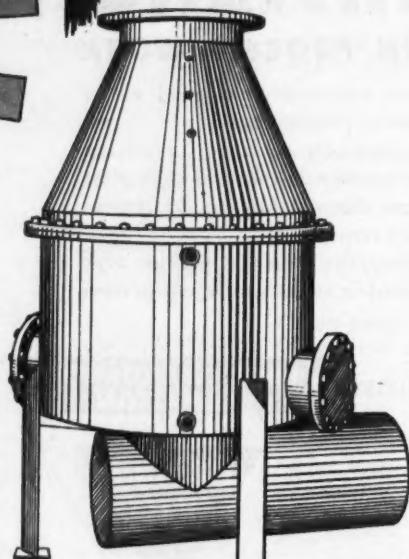
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Page 132

PROCESSING EQUIPMENT

Blade-pressure control on masonry saw reduces blade breakage . . .

unit weighing only 225 lbs has greater head-throw than other saws; for both wet and dry cutting

Uses: For dry and wet masonry sawing.

Features: This new model retains all features of maker's "Feedmatic" saw, plus extreme light weight. Automatic blade-pressure control eliminates operator guess-work which often results in hazardous blade breakage. In spite of its light weight this saw is constructed to withstand rough handling.

Instant head removal for easy about-the-job handling is particularly convenient. Constant changing of head position for varying materials is no longer necessary. Built-in foot pedal arrangement allows a much greater head-throw than is found in ordinary saws. If operator desires additional head positions there are 10 different positions available.

Description: Rigid tube and 1/4" angle construction combine to offer sturdy, light-weight saw. Water pump and blade are both driven by the 1 1/2 hp motor. (Saw is available in dry-cut models, also.)

Foot pedal has dual springs and cart is of wobble-proof design, aiding easy, yet precise operation. Pump is self-priming.

For extreme portability, a take-apart model which knocks down to fit auto trunk is available.

Source: "Valor" masonry saw is made by Victor Engineering Corp., Bristol, Pa. . . . or for more information check CP 3308 on handy form, pages 2 and 3.

Self-priming centrifugal pumps feature simplicity of design

Basic types of self-priming centrifugal pumps are detailed in interesting, 12-page, 2-color bulletin. Tells how "difter" method of priming permits full, smooth discharge whenever liquid is available at suction inlet, does not depend on bulky mechanical accessories for priming. Air or vapor is quickly drawn out of suction line and passed through discharge port whenever it occurs in the line. Photographs show long-coupled, close-coupled, vertical, belt-driven, and engine-driven models. Many installation photos show pumps handling volatiles, oils, anhydrous acids, clay coating-slurries, caustic soda, etc. Many charts contain complete specifications, selection instructions, friction loss of water per 100 ft. of steel pipe, friction loss of standard fittings, maximum practical suction lifts, etc.

Also discusses diaphragm and plunger slurry pumps. Bul. IB49, issued by Marlow Pumps, Dept. CP, Ridgewood, N. J. When inquiring specify CP 3309 on handy form, pages 2 and 3.

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CHEMICAL PROCESSING Preview

Convention & Exhibit Schedule

Oct. 4-7. Society of Industrial Packaging & Materials Handling Engineers (4th Annual Exposition), Convention Hall, Detroit.

Oct. 13-15. American Association of Textile Chemists and Colorists, Chalfonte-Haddon Hall, Atlantic City.

Oct. 17-21. National Metal Exposition, Cleveland.

Oct. 24-26. Packaging Institute (Annual Forum), Commodore Hotel, New York.

Oct. 25. Association of Consulting Chemists & Chemical Engineers, Sheraton Hotel, New York.

Oct. 24-28. Nat'l. Safety Congress Exp., Chicago.

Oct. 31-Nov. 1. National Paint, Varnish & Lacquer Assn., Chalfonte-Haddon Hall, Atlantic City.

Oct. 31-Nov. 2. Packaging Machinery Mfrs. Institute, Edgewater Beach Hotel, Chicago.

Oct. 31-Nov. 2. American Oil Chemists Society, Edgewater Beach Hotel, Chicago.

Oct. 1-5. Pacific Chemical Exposition, Civic Auditorium, San Francisco.

Nov. 3-5. Federation of Paint and Varnish Production Clubs, Chalfonte-Haddon Hall, Atlantic City.

Nov. 7-10. American Petroleum Institute, Chicago.

Nov. 14-18. 6th All-industry Refrigeration & Air Conditioning Exposition, Auditorium, Atlantic City.

Nov. 28-Dec. 3. Chemical Industries Exposition, Grand Central Palace, New York.

Dec. 4-7. American Institute of Chemical Engineers (Annual), William Penn Hotel, Pittsburgh.

Dec. 5-6. National Association of Insecticide and Disinfectant Manufacturers, New York.

Dec. 29-30. American Chemical Society, Division of Industrial & Engineering Chemistry, Columbus, Ohio.

1950

Mar. 26-30. American Chemical Society (117th National Meeting), Houston, Texas.

Mar. 28-31. National Plastics Exposition, Chicago's Navy Pier.

April 9-13. American Chemical Society (117th National Meeting), Philadelphia.

April 16-20. American Chemical Society (117th National Meeting), Detroit.

June 8-10. American Institute of Chemical Engineers (Regional), Hotel Statler, Boston.

June 12-16. Fourth National Material Handling Exposition, International Amphitheatre, Chicago.

Sept. 3-8. American Chemical Society (118th National Meeting), Chicago.

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Discussed in This Issue - - -

PROCESSES, EQUIPMENT and MATERIALS

Use this "quick-locator" when you want information on a specific type of process, equipment or material mentioned in the processing stories or the advertisements in this magazine. Everything discussed in this issue is given here, if you want more data you can write manufacturer direct, or turn to pgs. 2-3 and use the handy "Information Request Slip." This is a special service provided by the publisher . . . no obligation or charge, of course. The publisher contacts the proper manufacturers for you—information comes to you direct.

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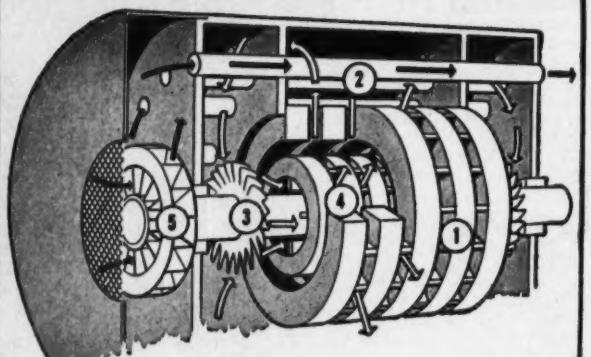
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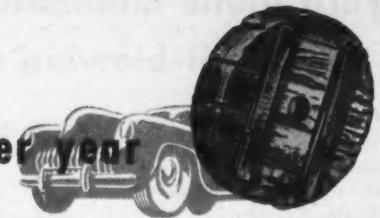
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Employs the simplicity of the jet . . .
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Where steam flow varies widely . . .
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Takes no more space than the pipe . . .
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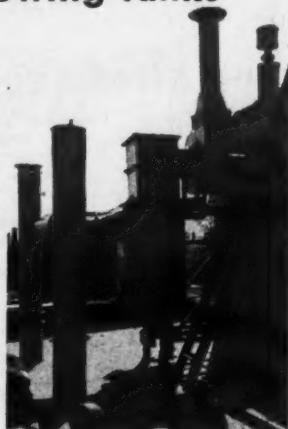
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Hydro-Clone Eliminates Odors from oil-blowing tanks

The nauseating discharge from two oil-blowing tanks in a paint and varnish works became a neighborhood nuisance. A single Whiting Type "S" Hydro-Clone (photo at right) eliminated the fumes so completely that odors could scarcely be detected at the exhaust.

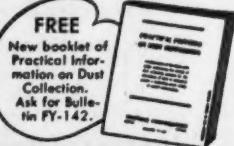
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INSTANTLY...No Wait for Setting!



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Now you can restore broken concrete to solid smoothness without having to close off the area. Use durable INSTANT-USE—a tough, plastic material which you simply shovel into hole—tamp—and run traffic over immediately. NO WAITING. Bonds tight to old concrete. Makes smooth, solid, heavy-duty patch. Withstands extreme loads. Keep drum on hand for emergencies. Immediate shipment.

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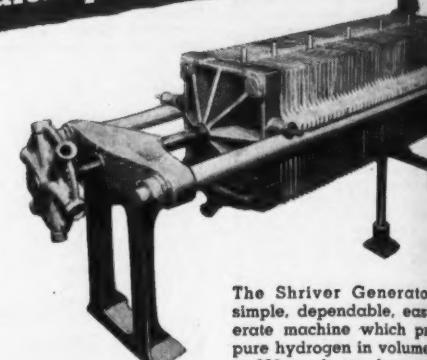
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**Makes Pure Hydrogen
(Free of Carbon Monoxide)
Quickly—Efficiently**



The Shriver Generator is a simple, dependable, easy-to-operate machine which produces pure hydrogen in volume up to 220 cu. ft. per hour. Its production efficiency is 95%. The gas requires no purification.

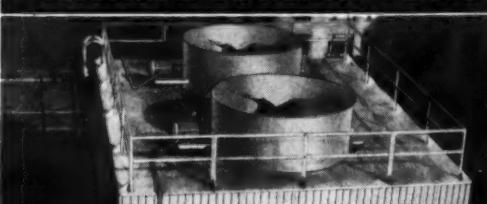
This machine is a particularly useful source of hydrogen for organic syntheses and other processes where even trace amounts of carbon monoxide are unacceptable. Write for data.

SHRIVER HYDROGEN GENERATOR

T. SHRIVER & COMPANY, Inc.
846 Hamilton St.
Harrison, N. J.

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Pritchard COOLING TOWER



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THREE LEADING LINES
Cooling Towers
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SEPTEMBER, 1949

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portable, easy-to-
use which produces
in volumes of 10
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efficiency is 7 cu
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Company

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Longer Life
Trouble-Free
Performance

DIVISION

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"That's Interesting"

Pigments resin-bonded to non-absorbent surfaces of new textiles

The application of color to textiles has been complicated by the development of new synthetic fibers. There is almost no limit to the fiber combinations which may be made, and the corresponding problems for the dyer and dye manufacturer.

The essential difference between dyes and pigments is a matter of solubility. Dyes are soluble and applied from solutions; pigments are insoluble and applied from suspensions. Many of the new fibers are non-absorbent and some unique methods have been developed to apply pigments to such fiber and textile surfaces. By a proper selection of the proper synthetic resin, pigments may be resin bonded to these textiles with no significant difference in their desirable qualities of softness, drape or "hand." (From "For Instance" No. 43 — published by American Cyanamid Co., New York 20, N. Y.)

Microcard scientific and technical publishing

Educational publications are now being produced by the Microcard method. Microcards are a form of micro-reduced text. Microcards are well described as a new method of publication. They are standard size library cards (7½ x 12½ cm) having on them not only a catalog entry, in the more or less usual form, but also a greatly reduced microprint, the complete text of the book. By means of a Micro Library Reader, they are easily read.

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The purchase price of Microcards will vary considerably. To reduce the price to approximately 15 cents, one hundred copies of the card would have to be made.

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(The Micro Library, Inc., La Crosse, Wis.)

Conveyor brings rock 1/2 mile to plant's surge pile

Conveyor system, using a 4717 foot belt, enables Consolidated Rock Products Co. to reach a pit, far removed from plant and processing operations, at Irwindale, Cal. When one of the large granite rock and sand deposits dwindled, plant managers decided to use the new pit, even though it was separated from the scene of processing activity by a public highway, and the maze of track that comprised the company's own railroad.

The belt, which is 2264 feet from center to center, has a lift of 100 feet. Operating through several tunnels under the highway and railroad tracks, the belt moves at 550 feet per minute, to handle 1000 tons an hour. Power is by 200 hp motor at 1765 rpm.

Arthur E. Howland, structural engineer at Consolidated, designed the entire installation, including the structure carrying the conveyor, the all-steel tower housing the power plant and driving mechanism, gravity takeup pulley, and a head pulley discharge of trussilever design, allowing great strength with minimum vibration and side strain.

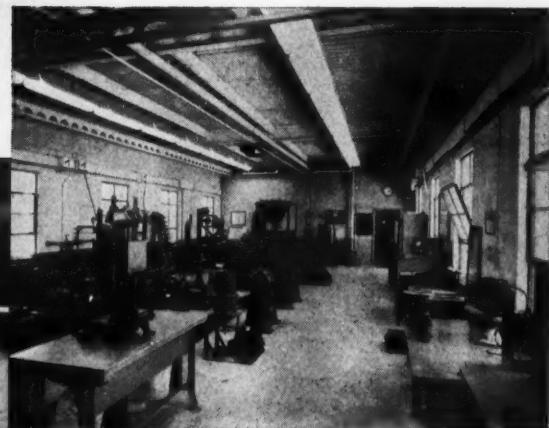
Steel metal decking, under the full length of the conveyor, protects the return strand of the belt from spillage. The belt is 5/8 inch, 6-ply, of the cord-conveyor type, made by B. F. Goodrich. In this construction, belt cords run parallel to each other throughout the entire belt length, giving increased resistance to impact.

High stress capacity permits holding plies to a minimum. Increased tough-ability permits use of smaller pulleys at both ends of the drive mechanism. (B. F. Goodrich Co., Akron, Ohio)



In the Baker Perkins laboratory, men who know processing run many tests each week on plastic masses, paints, gums, slurries and other materials which require mixing or centrifuging. Even though every problem they tackle is different—they are experienced and have facilities to determine the best method of processing almost any given chemical material.

By getting right to the core of the mixing problem that each specific material requires, these B-P laboratory men are able to determine precisely the best speed, temperature, pressure and other conditions at which a material should be processed. The size and type of equipment that will process it most efficiently is then recommended.



The B-P laboratory is at your service to help you reduce processing costs and improve the quality of your products. Write for information.

BAKER PERKINS INC.

CHEMICAL MACHINERY DIVISION

SAGINAW, MICHIGAN

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SATISFACTORY
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• Efficient operating performance—low maintenance costs through superior manufacture—long life, to protect your investment. Let us quote on your needs!

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